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- Deck equipment
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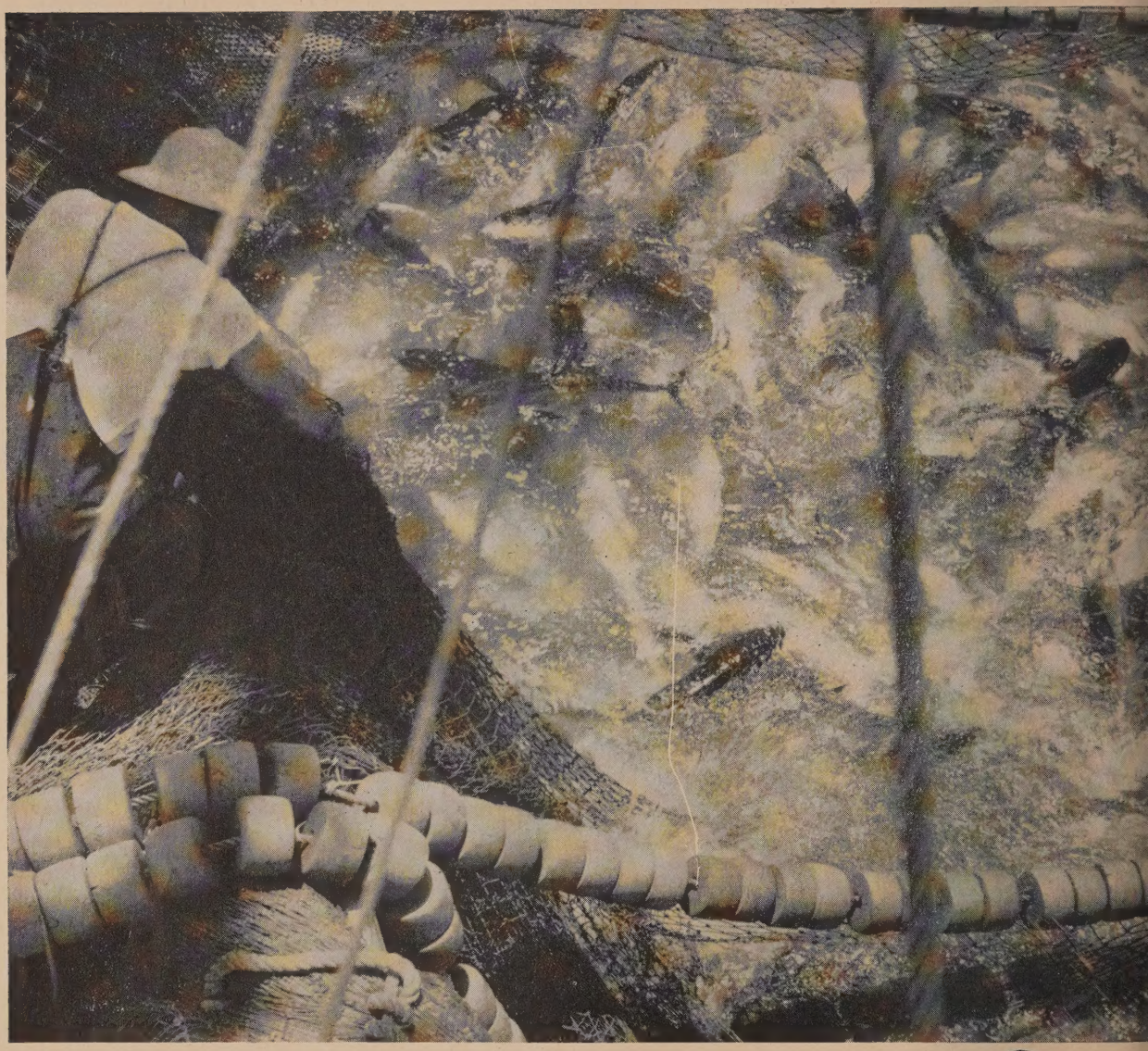
A SPECIAL REPORT



Anthony Nizetich, General Manager of the Fishermen's Cooperative Assoc., San Pedro, California, says:

"Nylon tuna nets aren't an expense ...they're a necessity!"

"Even though we'd heard right along that tuna nets of Du Pont nylon were great," Mr. Nizetich continues, "it wasn't until 1954 that a couple of the Co-op members bought nylon nets. I guess most of us were a little leery of paying out the initial purchase price. But not after we checked results with the fellows who did try nylon. They were seining an average of 9.7 tons of tuna a day against the 3.5 ton average the rest caught with hooks; and where it took the boats with nets of Du Pont nylon only 40 days to fill the boat, it took the others anywhere from 60 to 90 days.

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Our Fifty-Ninth Year— JUNE, 1961
Vol. 59 No. 7

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Alaska Seeking Director To Succeed C. L. Anderson

● Under the Alaska law, the governor of the state appoints the commissioner from a group of nominees submitted by the Board of Fish and Game.

In Juneau it was considered certain that the list of nominees would include both Mr. Marvich; Walter Kirkness, who has served as his opposite number of the department, heading the Commercial Fish Division; and probably other of the ADF division heads.

There seemed to be an outside possibility also that the governor would seek a "name" commissioner from outside the state, providing the board offered such a nominee.

The only "outside" name which had been mentioned in Alaska press discussions at time of writing was that of Richard S. Croker, in charge of marine research for the California Department of Fish and Game, and a long-time member of the Pacific Marine Fisheries Commission and advisor to the American section of the International North Pacific Fisheries Commission.

● Retirement of Clarence L. Anderson as commissioner of the Alaska Department of Fish and Game, announced for early next fall, set the authorities of that state actively seeking a replacement for the 71-year-old veteran who in 1948 became the first director of the Alaska Territorial Department of Fisheries.

Only a few weeks before Mr. Anderson announced his resignation Clarence Pautzke, deputy commissioner, had resigned to accept the position of commissioner heading the U.S. Fish and Wildlife Service.

Edward S. Marvich, a veteran who also had served the Alaska department virtually from its beginnings in territorial days, was appointed to succeed Mr. Pautzke. Mr. Marvich for a number of years has been head of the Sport Fish Division of the Alaska Department.

"P.F.'s" Publisher Heads Business Journals Assn.

William B. Freeman, president of Miller Freeman Publications and publisher of *Pacific Fisherman*, in May was elected Chairman of the Board of Directors of the Associated Business Publications, a national association of publications devoted to business and industry.

In his added role, Mr. Freeman will head an organization which represents 169 business publications whose editorial activity penetrates deeply into businesses and industry throughout the world.

His appointment to the chairmanship of the Associated Business Publications is a solid recognition of over 30 years of service in the field of progressive publishing; and more than a recognition for past activities, his appointment recognizes the promise for continued dedicated service for many years to come. He has been president of the Miller Freeman organization for six years.

The company was established in 1902 in Seattle by Miller Freeman, and is well-known as a producer of magazines serving specialized fields of interest around the globe.

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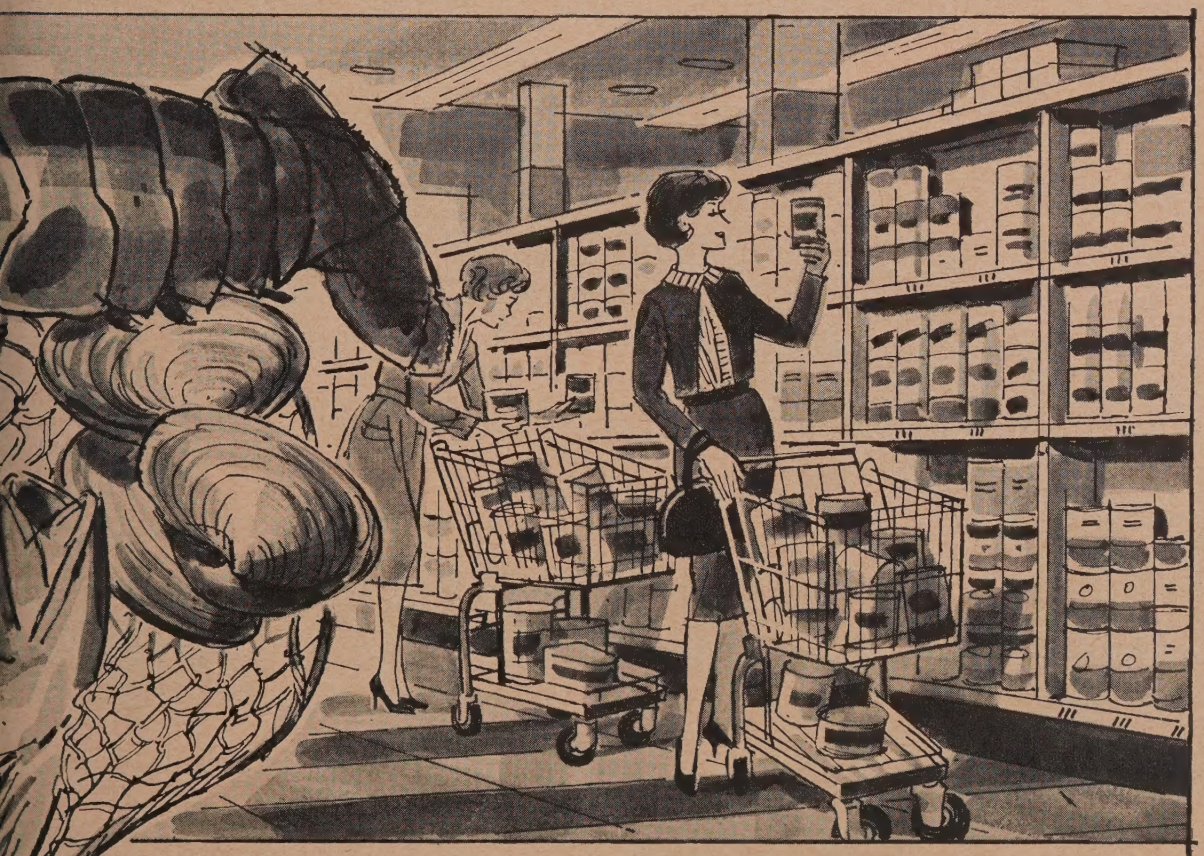

2 After you pack!

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Continental provides a cannery-to-kitchen service for seafood packers from coast to coast. Experts solve on-the-spot problems of individual canners with scientific skill and imagination, tireless researchers explore and test new and improved methods of processing seafood and the famed Continental Merchandiser Digest adds force to canned food selling by bringing important retail hints to over 100,000 supermarkets every month. This total service insures you of the finest container for the seafood you process. Wherever you are, whatever the seafood, Continental has the right package for you.

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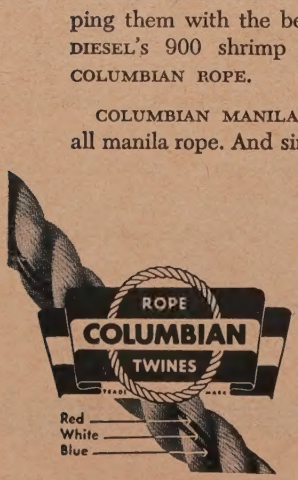

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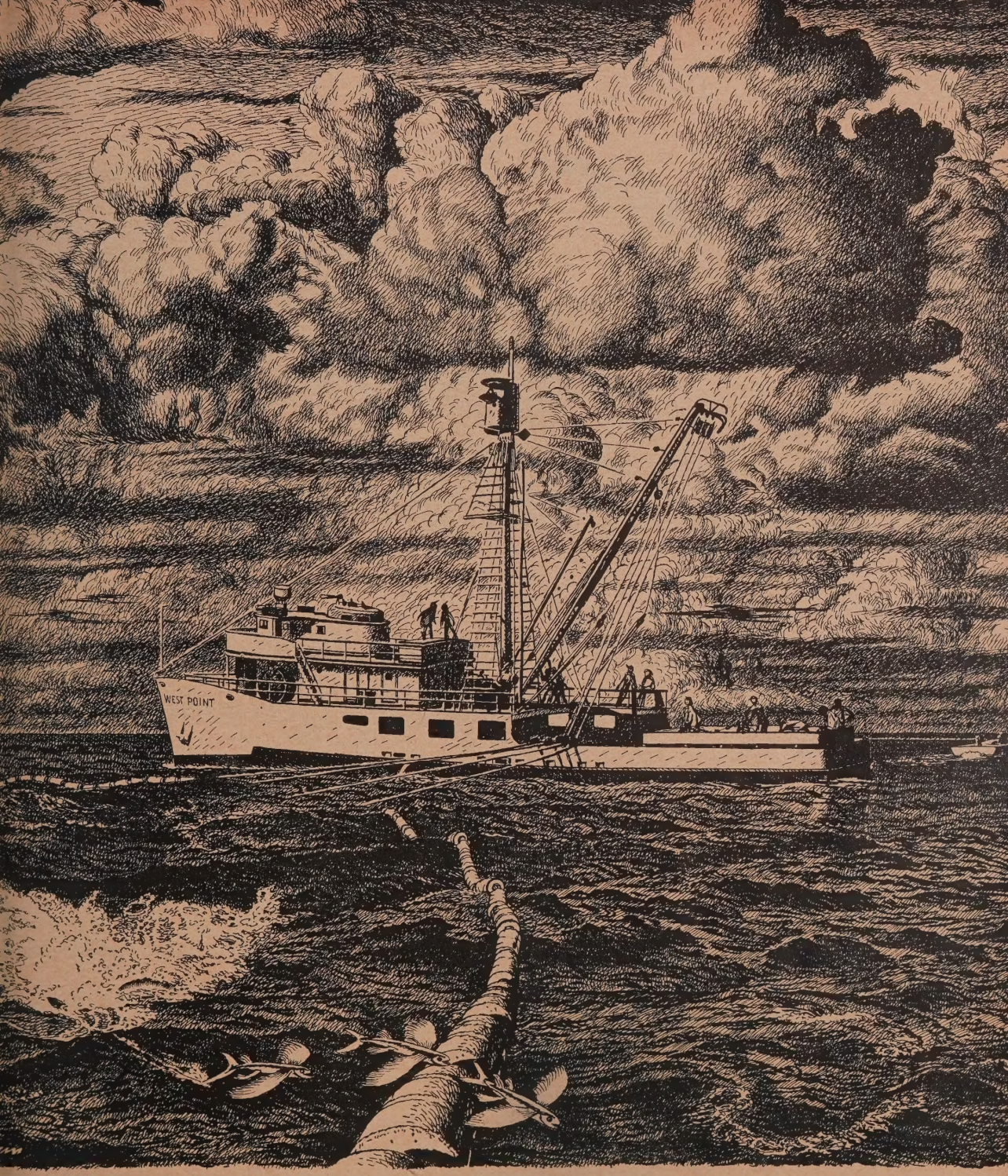

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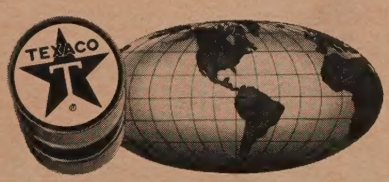

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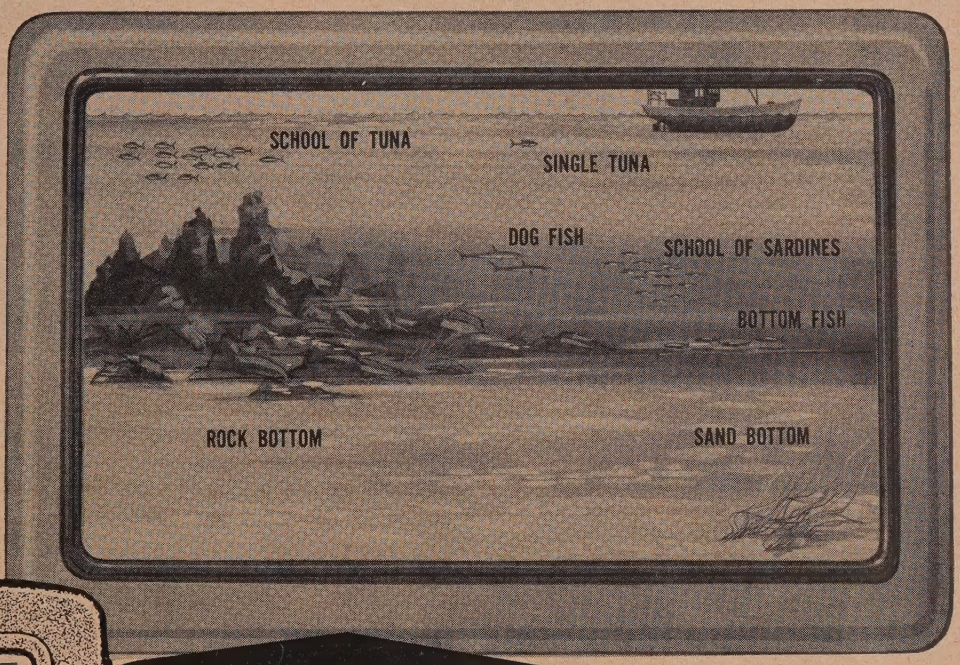

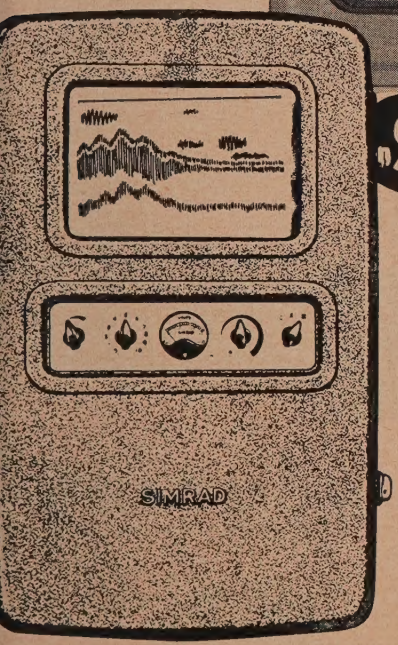

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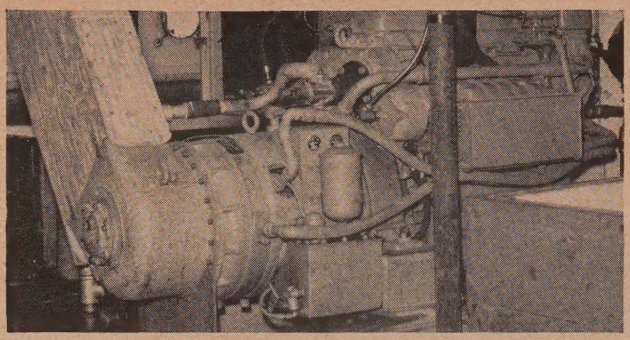

Another tuna seiner joins the trend to *TORQUE CONVERTER* winch drive

American Beauty's winch engine drives through *TWIN DISC CONVERTE*

Tunamen have been quick to recognize the advantages of torque converter drive in seining operations. A case in point is the *American Beauty*, recent addition to the ranks of converted clippers.

The *American Beauty's* powerful Rowe winch is chain-driven off a diesel engine through a Twin Disc Torque Converter. Both engine and converter are located below deck.

The converter's unique ability to multiply torque automatically is used to excellent advantage here. A surging sea can cause wide variations in the load and put heavy strains on the winch. The converter instantly selects the exact amount of torque needed and applies it to the line. There's steady tension all the way no matter how skittish the sea becomes. Shock loads never reach the engine and haul rope life expectancy is greatly increased.

Skipper Frank Manaka sums it up this way: "As far as I'm concerned, torque converter drive is just about a 'must' when you're hauling tuna."

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PACIFIC FISHERMAN'S NEWS

JUNE 1961

Look North — Look West

Seasonal Tension Electric

Salmon operations open in Alaska this month in an mosphere which is almost electric in its tension.

Industry has prepared for the season with a vigor hich proclaimed itself in the sound of boat-building and gine-testing unknown in years.

But in spite of all the clamor, which proclaimed aloud at big things were afoot, the season's plans were laid secret. Companies framed their programs and kept em to themselves.

Not for many years has so much been doing, and so tle been known about how and where it was to be done.

What created all this intensity of preparation?

Well, there was the big run on Bristol Bay in 1960. en still had money this year with which to build—boats d plants and plans.

And again, there was the conviction that another big n *might* be coming. The scientists made a reasonably orable forecast, which fishermen and packers considered on the conservative side. Wasn't the big run of 1960 composed largely of 4-year fish? And isn't the Bristol Bay population dominated by 5-year salmon?

Finally, there was the confidence that the Alaska state fisheries administrators, on the basis of their 1960 performance, would be realistic in permitting fishing on any surplus above moderate spawning escapement.

● Nor was the tension all on the American side.

In Tokyo the Soviet and Japanese negotiators were deadlocked later than ever before, to the end of the third week in May, before Japan resistance folded under the inexorable pressure of time. To have resisted the Russians longer would have lost them the season—and the Japanese are realists. Besides, early fishing was essential if the quota was to be filled largely with Reds, as in 1960.

So they accepted a tonnage quota of 65,000 metric tons, down by 2,500 from that of 1960, and this a Pink year.

High Court OK's Freezership Tax

Alaska freezerships, which came ck with a bang on Bristol Bay t year, and seem sure to take an ive role again in 1961, are face- face with a new problem,.

At the first of May the U. S. Su- me Court, by an 8-to-1 vote, up- d the legality of Alaska's law tax- freezerships 4% of the value of hery products frozen by them and into storage.

This decision reversed the appeals rt, which had held that freezerships were engaged in interstate commerce. With this the Supreme Court disagreed, contending rather that the tax was being laid on freezership activities of a local business nature.

The contest of the Alaska tax was taken in the name of Arctic Maid Fisheries, Inc.; Pacific Reefer Fisheries, Pacific Queen Fisheries, Alaska Reefer Fisheries, North Star Fisheries, Northern Reefer Co., and Grimes Packing Co.

Just what effect the ruling would have on freezership operation is still somewhat problematical. Much will depend upon the stage of manufacture at which the value of the fishery products is levied. If it is laid on the value of the fish bought for freezing, while the vessel is still in local waters, that's one thing. If it is levied on the selling price of the fish, that's another —and by that time of course the fish definitely will have passed into interstate commerce.

anta Helena" Returning om African Duty

anta Helena, high-pine tunaboat, ch left California early this year fish in African waters, is on her back. Fishing for Van Camp Sea d Co., she was sent under Skipper nk Gargas to scout African waters and size up the possibilities for building up a substantial fishery.

When fishing this year turned out rather thin in Africa, but very productive off Central America, *Santa Helena* headed back. She was to transit the Panama Canal, fish in Central American waters (or wherever the fish is running at the time) and unload her fare on Terminal Island, Calif.

Trawlers Ship Radar

Three Fort Bragg, Calif., trawlers *Noyo Star,* Manuel Figuerido; *Northern Light,* Urbano Bros.; and *LaPaz,* Al Faraldo, have all been equipped with RCA RadioMarine Model N3A radars, purchased from and installed by Marine Radio Electronics, Fishermen's Wharf, San Francisco.

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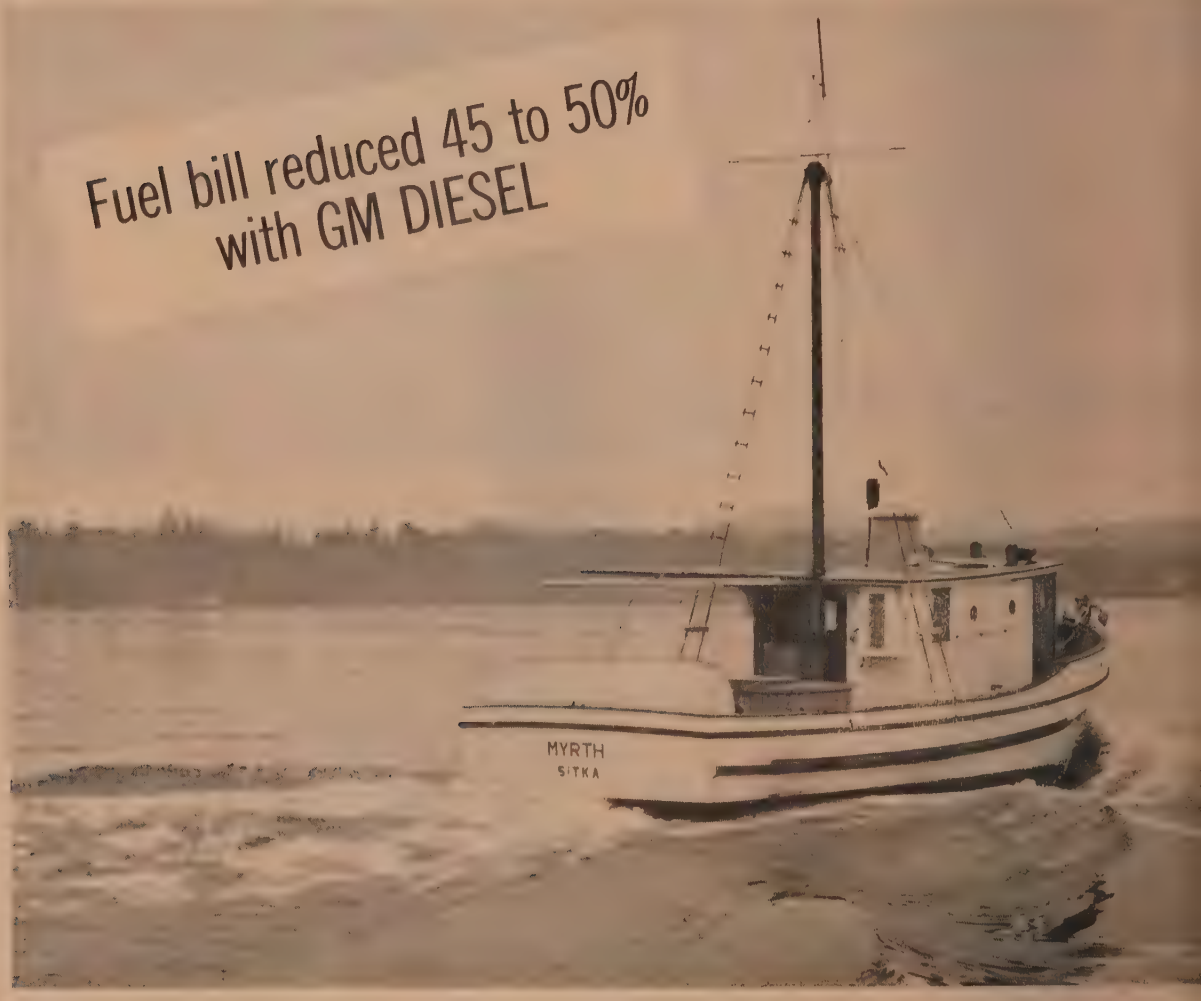

"I was impressed with GM Diesels even *before* I bought one—because I knew other fishermen up North have had good luck with them, and you can get GM parts in Alaska. But I was even *more impressed* after we started to use it."

That's Rudy Sarvela, owner of the Salmon Troller MYRTH, speaking. Rudy fishes the waters off Southeast Alaska with Sitka as home port. He recently replaced an 8-cylinder gasoline engine with a GM Diesel "3-71."

Here's what he says about his fuel costs. "The gasoline bill for the old engine averaged between $800 and $900 per year. Our fuel savings with the GM should range from a low of $360 to a high of $450 per year."

That's a saving of 45 to 50 per cent! And cruising speed has gone up close to a knot, as well.

MYRTH, a Monk designed 40-footer, swings a 34″ x 22″ wheel through a 3.4 to 1 reduction. She now cruises at 7.9 knots, has a top speed of 8.3 knots. After reducing fuel tankage by 400 gallons, her cruising range with the "3-71" is still over 1200 nautical miles.

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What is Japan Intent With Respect to Halibut?

● Japan's bottomfishing intentions in Bering Sea and south of the Aleutians were obscure at the end of May, foggy as the sea where they will be carried out.

Permission for trawling east of Unimak Pass and south of the Alaska Peninsula was denied Japanese companies, but the Japanese fisheries press reported that at least one, and perhaps three, fishing concerns will operate south of the *Aleutian Islands*, which would be *west* of Unimak Pass.

● Halibut operations projected by the Japanese are even more confusing. Under the North Pacific treaty Japan abstains from fishing halibut originating along the coast of North America.

At the same time, official U. S. government translations of reports published in the Japanese fisheries press say that 26 Japanese fleets engaged in Bering Sea bottom fishing have a catch quota of 585,000 metric tons, which includes 34,000 *metric tons of halibut.*

This figure can hardly be accepted as realistic, for it converts to 74,800,000 lbs., which is more halibut than the combined Canadian and American halibut fleets have ever taken in any one year.

It should be noted that the reports say this halibut will be taken *in Bering Sea,* but particulars are not given as to the portion of the sea which will be fished for halibut. The westerly area of the sea of course is very deep, and not usually considered attractive for bottom fishing, except very close to shore.

Expectation that the Japanese operations in Bering Sea and south of the Aleutians will also seek shrimp is gained from translations of Japanese fisheries press reports.

● The Soviets? Ah, not much is known of their present activities; and less still of their intentions.

That they will be working broadly south of the Alaska Peninsula and the Aleutians there is little reason to doubt. Last year they penetrated deep into the Gulf of Alaska, and it would be surprising if they did not check their information there again this year.

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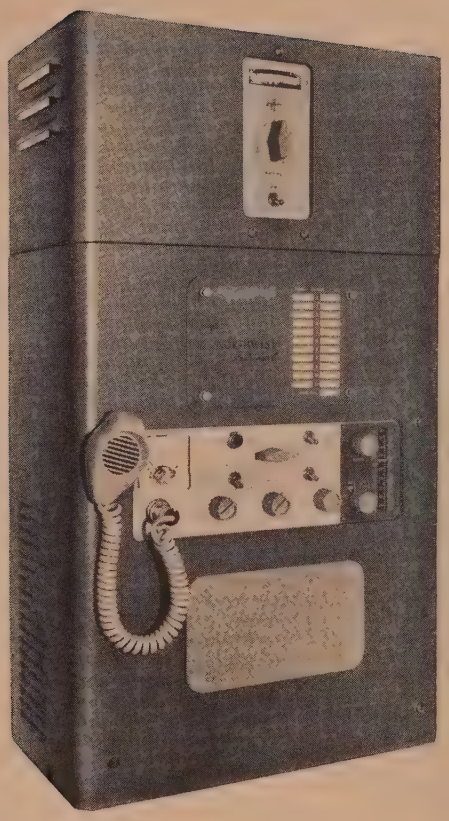

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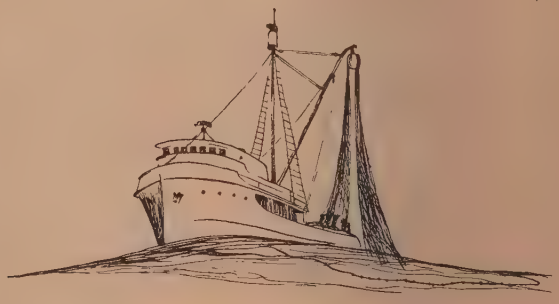

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STANDARD ENGINEER'S REPORT

Works long shifts at slow speeds—Yet no sign of engine deposits after 15,800 hours

MV Two Brothers works long, hard hours at slow, engine-punishing speeds, dragging for fish out of New Bedford, Mass. This 50 ft. fishing boat is powered by a Caterpillar D-13000 engine using RPM DELO Oil exclusively since new. Yet, after 13 years of severe service engine parts remain clean, show surprisingly little wear.

At last major overhaul after 15,800 hours there was no carbon buildup, no sludge or deposits of any kind. Pistons showed no varnish or scuffing, oil ring slots were clean, rings free and clear.

Captain Maurice Clattenburg reports "We are thoroughly satisfied with the performance of RPM DELO Oil. We've gotten outstanding service, and our maintenance records prove it."

Marine lubrication problems? Let one of our technically qualified engineers solve them for you. His experience and the wide range of top-quality Standard products assure economical solutions to any lubrication problem.

The free technical assistance of a Standard Engineer is available at all major West Coast ports. For more information, contact any Standard Oil representative, or write: 225 Bush Street, San Francisco 20, California.

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Millions in Stepped-Up Research are Focused on Gulf of Alaska Secrets

● Swelling interest in the fishery resources north of 54-40 isn't confined this year to the Reds of Bristol Bay, nor to volume of the catch or level of the price.

Scientific search is stimulated also, with the research fleet about doubled, and particularly in the great curving sea area of the Gulf of Alaska from Kodiak around and down to the Queen Charlottes.

The multiplication of research effort involves studies sponsored by the American and Canadian sections of the International North Pacific Fisheries Commission, and also by the International Pacific Halibut Commission, in which the two nations are engaged in a joint enterprise.

Step-up of study in this area of the Gulf of Alaska plainly traces to two factors:

1. Evident intent of the Japanese and Soviet high seas fishing operations to move into waters south of the Aleutians and the Alaska Peninsula, and possibly further eastward. There they could be expected to impinge upon resources in whose conservation the United States and Canada have collaborated for years.

2. Knowledge that within a year—or two at the most—it would be possible for any nation party to the International North Pacific Fisheries Convention to initiate a call for review of that instrument. Fullest possible information will be useful in negotiations which might be expected to follow such action.

Emergency Funds Granted

● Funds for the United States Section's participation in the expanded emergency research were provided in the amount of $1 million for the 1961 fiscal year; and this is expected to be followed in fiscal 1962 by an additional $1.5 million.

Attainment of this emergency appropriation since the first of the year is evidence of the seriousness with which the situation is viewed in Congress, and also of the effectiveness with which the need was laid before the Department of the Interior, Bureau of the Budget, Department of State, the House and the Senate.

Many men cooperated effectively in this undertaking; men in Congress, departmental government and industry, at all levels. Of these, two should be mentioned specially for the effectiveness of their contribution.

They are:

Senator Warren G. Magnuson of Washington, chairman of the Senate Committee on Commerce, which handles fisheries matters in the upper house; and

Haakon B. Friele, president of the Nakat Packing Corporation and member of the advisory committee to the American Section, who sparked industry's support of the project.

● Of the $2.5 million to be expended in intensified research through 1961 and 1962, approximately $1 million will be for projects conducted through the Seattle and Juneau regional offices of the U.S. Bureau of Commercial Fisheries.

The Fisheries Research Institute contracts will run to $891,000; and the Alaska Department of Fish and Game has undertaken projects to cost $650,000.

● Under the FRI emergency research program two ocean seiners are fishing in the Gulf with great nylon seines identical with those which have proven so successful in fishing in the Area of Intermingling in the vicinity of the Abstention Line.

Ocean Pride, Capt. Carl Haugland, is assigned to fish, sample and tag from Yakutat to Dixon Entrance, centering on Sitka.

Storm, Capt. O. Mork, is operating in the seas west, south and east of Kodiak Island.

Other vessels operating under the BCF will seek data as to occurrence, abundance and distribution of salmon; and will take samples for origin identification studies.

All of these activities in the Gulf will be concerned specially with the Pink and Chum salmon resources.

Intensive Trawling Study

● Altogether independent of the researches of the American and Canadian Sections of the INPFC, although basically related to them in pur are the investigations being condu by the International Pacific Ha Commission, which has three tra engaged in a year-round investiga

These vessels frankly are see to evaluate the effect upon the ha resource of the sort of trawl fi which may be expected if the S Union and Japan pursue their bot fishing operations into the North cific and the Gulf of Alaska.

Three American trawlers won ters in the bidding conducted by commission. They are: *Arthur* Capt. Olaf Angell; *Morning* Capt. Lars Svege; *St. Michael,* M. J. Evich.

They will trawl continuously months a year in the area from northeast end of Kodiak Island to Unimak Pass, a linear distanc 550 miles, with 40,000 square of trawlable bottom.

● Cost of the halibut operatic expected ultimately to reach at $396,000. Funds will be provide equal amounts by the United S and Canada. Congress currently under consideration a request fo initial appropriation of $132,000 the project.

King Crab Industry Contributes to Research

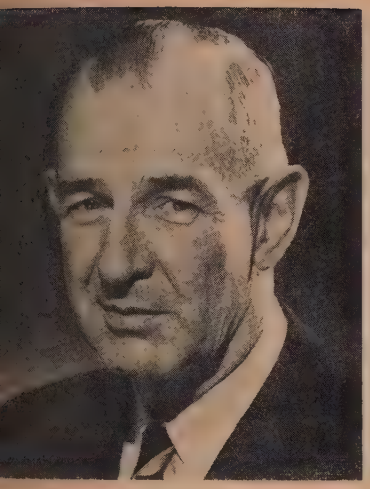
Members of the Alaska King industry met in informal sessio Kodiak in May with officials o Alaska Department of Fish and G to discuss means by which the in try could cooperate in the expa research studies of the Internat Pacific Halibut Commission and ADF westward from Kodiak Is

Upshot of the meeting was dec by the industry to make volun contribution in the amount of per lb. of King crabs purchased season. The funds subscribed— than half of which had been pa at the end of the third week in —will be used primarily for ta King crabs taken in trawling ciated with the halibut research; in paying rewards to the fishe recovering the tags.

"Washington Star" Wil Become Tuna Seiner

Washington Star, formerly ope by Al Davies, Tacoma, as a re ship, is undergoing conversion i tuna purse seiner at the Tacoma Building Co.

The job is a big one, estim to require six months and to $400,000.



George C. Starlund

tarlund Reported Choice As Washington Director

Appointment of George C. Starlund as Washington State Director f Fisheries, succeeding Milo Moore, as anticipated by close observers at lympia at the end-of-May deadline f this issue.

Mr. Starlund for four years has een director of the Washington tate Department of Public Assistnce. Thus it appeared that Gov. . D. Rosellini had decided to call n one of his tested administrators to ssume new duties.

Mr. Moore and Mr. Starlund were oth candidates for the position of irector of Fisheries in 1957, the appointment going then to the former, hile Mr. Starlund received the Pubc Assistance assignment.

For a period from 1953 on Mr. arlund was executive director of e Stream Conservation Council, an gency comprised of sport and comercial fishing interests, united to ovide effective resistance to any pairment of streams upon which large a part of the future of food d sport fisheries depend.

The Stream Conservation Council as conceived by the late G. P. Halrty and headed by him, with Mr. arlund as its executive director.

Mr. Starlund's previous administitive experience in the Washington te government is varied. He has ved the highway department, has en assistant commissioner of pub lands, in the attorney-general's ice, and acting state director of enses.

Olympia observers also expected overnor Rosellini to appoint an sistant Director of Fisheries, filling osition which has been vacant for out a year.

The BIG QUESTION: How Many Salmon, Boats, Canneries and Freezers?

● There's always mystery about a salmon run—and no one knows how many fish there'll be until the last can is closed and the last pair of spawners have passed above the deadline.

This year, so far as Bristol Bay is concerned, the mystery is even deeper. No one knows how many fish there'll be—nor how many boats there'll be to catch them—nor how many lines there'll be to can them—nor how many freezers.

Beside the 250 or so brand-new gillnet boats going to Bristol Bay this year, the feature of the preparations has been the amount of refrigeration built into vessels, packaged for canneries, and added to existing facilities.

Moreover, there's a degree of secretiveness about the operational facilities—those not concerned with fishing but with canning, carrying and freezing fish—never before recalled.

● Preparations have been marked by a distinct tendency for companies to go it alone, and to keep their plans quiet.

How many canneries will be active on The Bay this year is a question which defeats the inquirer.

Nor can you count with any degree of certainty the freezerships—and will they function as freezerships, bringing their cargoes south for canning- Or will they be floating - buying - stations - combined - with - refrigerated - storage - facilities?

A lot of familiar hulls were being painted and outfitted in Seattle at presstime. There was *White Sea, City of San Francisco, St. Francis* and *St. Marie* among the retired tuna clippers. The big *Arctic Maid* was ready again of course, and most of the veterans of the trade.

One newcomer was the *Theresa Lee,* all 176′ of her, said to be opering under the direction of Robert Resoff, formerly president of King Crab, Inc.

The refrigeration job on the *Teresa Lee* was installed by the R. W. Sales Corporation and consists of twin 60-hp. Creamery Package ammonia compressor units in the hold, serving two steel chilling tanks on deck.

● Refrigeration installations are not being confined to freezerships and power scows. Many canneries are increasing their capacity for chilling. Last year's big run on the Bay showed how valuable controllable cold can be in protecting quality and enabling the canneries to get the most out of the run.

The canneries with compressors don't need many limit flags.

Alaska Salmon Business Hazardous

● Hazards of Alaska fishing operations revealed themselves plainly in the May movement.

Two of the heaviest losses involved barges. Chignik Fisheries Co. barge *Chignik* 101 broke loose from the tender *Robert M.* in a heavy gale in the Gulf of Alaska and was driven ashore on Montague Island. Condition of the craft and fate of its cargo was not clear at presstime, but Montague is notorious as a merciless shore.

Another heavy loss was that of the power scow *Chief,* owned by William Shimmel and bound for Bristol Bay with a load of cannery supplies. She exploded and sank in Johnston Strait, B. C., late in May. Capt. Shimmel and his crew, Palmer Albertson, Oscar Albertson, Herbert Schneider and John Swink, were taken off by the Canadian *Northern Prince.*

The *Chief* had recently been equipped with a sea water chilling system at a cost of $135,000.

Janguar, one of the handsome red-and-black tenders of the Kadiak Fisheries Co., 10 hours out of Seattle for Port Bailey, took fire in the upper house adjacent to the stack and had to be returned to Seattle for repairs. While the vessel and her power plant apparently escaped serious damage, the entire upper house is being replaced.

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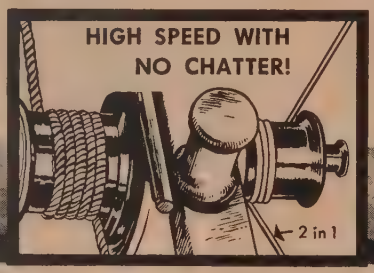

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Galaxy of Gillnetters

Marshals on Sub-Arctic Bristol Bay

● Boats from Norway, boats from Canada, and of course most of them from the United States—Washington, Oregon and California—are among the new craft which went north in May and early June to fish this year on Bristol Bay.

There are more than 250 new gillnetters, each 32′, or within a few inches of it. Of these 223 at latest count were carried on Alaska Steamship Co. vessels—the balance on power scows, barges and what have you.

Most of them are built of wood, perhaps Port Orford cedar, or Alaska Yellow cedar; but almost a score are of aluminum; and more than that of plastic and glass fiber.

Largest supplier of these new gillnetters undoubtedly is Bryant's Marina, whose Bryant's High-Liner model established itself in the lead some years back and has held first place since.

● Matsumoto Shipyards, Ltd., of North Vancouver, B.C., is the principal supplier of imported boats, having built 12 for Harold Daubenspeck's Kenai Packers. These boats are all expected to go to Cook Inlet, as they are fitted with gillnet reels, which are not generally considered Bristol Bay gear.

They have Palmer gas engines from Pacific Marine Supply Co., Ballard Division. These were shipped to Canada in bond and installed there. The boats also carry Marco hydraulic gillnet reels and fairleads.

The gimmick on imported boats entering the United States is that there is no duty on boats under five tons, and it has been possible to build 32-footers just under that measurement.

Mr. Daubenspeck is Alaska's No. 1 exponent of aluminum boats, having had 10 built for his operation in 1959.

● Alaska Steamship Co. reported that the biggest cargo bound north was the 99-boat load of the *Talkeetna*, which carried 65 on deck and the balance in her hold when she sailed May 16.

Nenana of the same line is taking 62, the *Coastal Monarch* 42, and the remaining 34 will be split between the *Susitna* and *Tonsina*.

Of the Alaska Steam commitments, 180 are for Naknek discharge and 43 for the Nushagak side—but you can bet most of the 43 will be fishing the south side of the bay about June 24.

Glass-and-Plastic Makes New Gain

● Plastic gillnetter construction this season was split principally between Ron Rawson, Inc., now operating at Houghton, Wash.; and West Coast Marine, Inc., at the old Olson & Winge yard, Seattle.

This latter company built 16 boats to designs by William Garden, Seattle naval architect. The boats are 32′ by 10½′ and draw 26″. Capacity is figured at 5,000 average Reds. Material is fire-retardant plastic resin over fiber glass reinforcement.

Ten of the West Coast Marine boats were built for American Packing Co.; three were on order of the BIS Bureau of Indians Affairs for delivery to Dillingham fishermen; and three were for individual fishermen: Ted Nakkerud, Glenn Anderson and Arne Kraad, all of Seattle.

The latter was the owner of a plastic gillnetter which burned on the Naknek River last season. It is interesting to note he ordered another of plastic-and-glass construction for 1961.

Fifteen of the boats had Chrysler engines. The 10 for Ampac have 225-hp. Chrysler Imperials with 2.57:1 Borg-Warner reverse and reduction gears, supplied by N C Marine, Seattle.

The Anderson and Nakkerud boats had 210-hp. Model 318-B Chryslers with similar Borg-Warner gears.

The bureau of Indian Affairs boats and that for Kraad, carry 200-hp. Palmer engines with 2.5:1 Capitol reduction and reverse gears.

Equipment common to all the boats included Federal propellers, Mathers clutch and throttle controls, Wagner hydraulic steering equipment supplied by Pacific Marine Supply, Ballard Division; Jabsco bilge pumps and Steward-Warner instrument panels and Water Clean-Flo keel coolers from N C Marine; also Neptune oil-burning galley stoves from Washington Stove Works, Everett.

The 10 Ampac boats had Apelco radiophones from Northwest Instrument Co. These 10, plus the three BIF boats carried Clatskanie power gillnet rollers. Anderson chose a Marco roller for his boat.

Fuel tanks for all were of plastic and fiber glass, 240 gals. capacity.

' of the Fleet are Norway-Built

Among the exotic gillnet boats on ristol Bay and Puget Sound this year ill be seven Norway-built hulls.

Four of them are owned by the ammer brothers—whose names, and ose of the boats they will fish are: arne, *B.H.*; Sigvard, *Solvig;* Agnar, *.H.* The former owns two of the ats, although only one will be put into operation this year. The boats will be fished this year for E. H. Bendiksen's Queen Fisheries at Naknek or Nushagak.

The boats are slightly different. *B.H.* was built in Vestnes, Norway, and is 31′10″ by 10.5′ and is powered with a 92-hp. Penta diesel with 2:1 Borg-Warner hydraulic reduction gear.

Solvig and *A.H.* are sisters, built in Ramsdal. They are powered with 165-hp. Graymarine gas engines with 2:1 Paragon gears purchased from White Motor Co., Seattle. They have Monel shafts and Columbian propellers and stern bearings.

All three boats are built of Norwegian pine on oak frames. The planking is finished bright with three coats of raw linseed oil, topped with a Norwegian special boat varnish. A notable feature of the planking is that it car-

"RCA Radar and Fish Finder mean safety and success on the fishing banks"

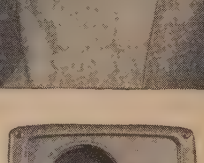
...Says Herbert Greene, Owner of TERRA NOVA, Trawler

"Our RCA Radar speeds up trips in and out of port, particularly during foggy weather. The 'Fischlupe' is invaluable in locating schools of fish and helping us to stay with them while a trawl is made. Together they mean safety and success on the fishing banks."

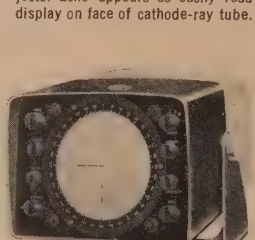
The trawler TERRA NOVA is equipped with an RCA Model CR-105 Radar and an LAZ-16 "Fischlupe" Fish Finder. Both of these equipments have been used since the trawler was acquired about six years ago.

Other dependable RCA equipments now include the new CR-107A Radar with range scales of ½, 1½, 4, 12 and 32 miles, the Compact Radar N3A shown at right, the ET-8060 20-Channel Radiotelephone and the LR-8803 Direct Reading Loran—all RCA dependable.

RCA's complete Radiomarine Electronic Equipment Package can help your workboat fleet to communicate faster and navigate better to increase safety and profits. Write to RCA, Fleet Marine Equipment, Dept. W-413, Building 15-1, Camden, N.J.



MODEL LAZ-16 RCA FISH FINDER
Gives accurate indication of the seabed, fish and other underwater objects. Echo appears as easily read display on face of cathode-ray tube.



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ries many knots—good, tight one course. With the clear finish they a little like the Knotty Pine, bel of trollers and crabbers at West

This is not to say that the wegian pine isn't good, sound w It has been famous in hulls sinc days of Leif the Lucky and Eri Red. The Hammers are proud of ing the genuine article and had hulls finished bright to prove it.

The Hammer boats are all e ped with Pearce-Simpson "Isla 14-A" radiophones purchased N C Marine, Seattle.

The other three Norwegian are Anfin Simonsen's *Eskimo*, Isaksen's and Akbert Anderson's *Lee*. The first two are virtually ic cal with the Hammer boats, and *Eskimo* is powered with a 9 Penta diesel, with Capitol 2 : 1 re and reduction gear.

Lori Lee is a different model, in a yard near Bergen. She is 32' and somewhat leaner than the ot being 9½' beam. Her power is a 20-hp. Sabb diesel, manufacture Norway. Other equipment inclu Bendix Skipper 101 radiophone Jabsco pump. She was outfitted equipped at Pacific Fishermen, Ballard. This vessel will fish for N Packing Corporation on Puget So

The other Norwegian craft we shipped to Bristol Bay in May.

High Speed, High Power Built Into Gillnetters

● Three cruiser hull gillnetters built for North Star Fisheries' on Bristol Bay this year. These footers are broad of beam—11' and designed to plane under the t of their 300-hp.—that's right, 3 Palmer gas engines, turning thr 2 to 1 Paragon reverse and redu gears from Pacific Marine Su Ballard Division, which also furn the dual-helm Wagner hydraulic s ing gears.

The three boats were built United Boat Builders, Bellingham

Arthur d'Evers Dies

Arthur H. d'Evers, 76, friend familiar of two generations of Pa Northwest fishermen, who he se as partner and at one time secr of the marine supply firm of S & d'Evers, died in Seattle lat April.

Mr. d'Evers retired from a business five years ago. He was of H. W. d'Evers, a founder of firm, which dates back to 1915

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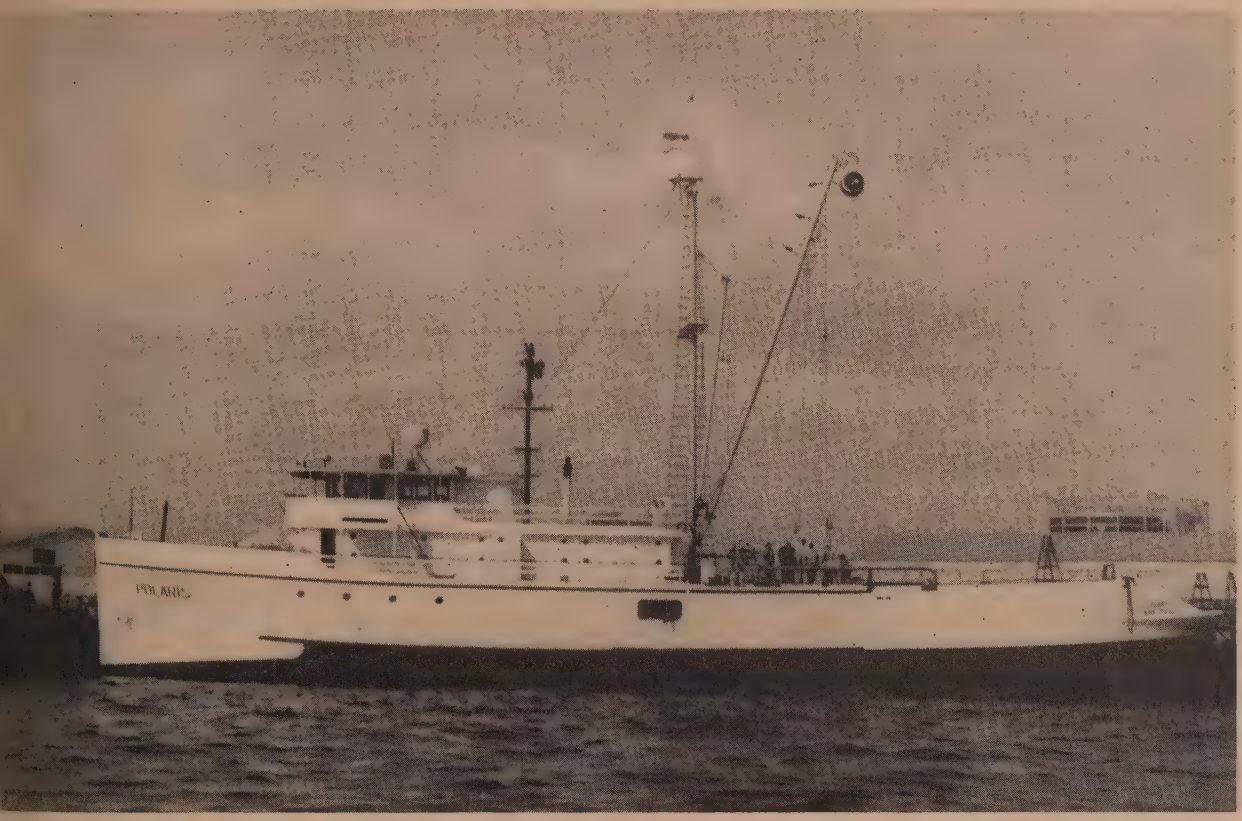
(Originally Home of the Tuna Clipper)



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says Capt. Anton Misetich, master of the tuna seiner Paramount

"My present net is part TRILOCK and part conventional knotted nylon webbing" says Capt. Misetich, "so I've compared the two kinds. I've decided to replace my conventional webbing with TRILOCK.

"No doubt about it, TRILOCK is stronger. No matter which way the pull comes, the meshes hold better. We came through our last trip without a tear. I find TRILOCK has better dip retention too.

"THE TRILOCK net works better—no friction. It's light weight, works better in the equipment. Porpoise do not seem to get tangled up in it, but roll freely. We had less shark problem with our TRILOCK.

"The biggest cut we've made with our TRILOCK webbing was around 65 tons or more, but we could have made much bigger cuts if we had needed to, without fear of losing the fish.

"I think we'll fish faster and easier with TRILOCK. To me, that means lower costs and bigger profits. That's why I'm replacing with TRILOCK".

Year after year, Capt. Anton Misetich has been am the leading fishermen in the San Pedro tuna fle most of the time top man, bringing in more ton tuna than any other seine skipper in the fleet. He the first tuna fisherman to use a complete ny seine (on his vessel the ANTHONY M.). A fisher all his life, he has successfully fished sardines mackerel as well as tuna.

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With TRILOCK you'll catch fish faster, easier, for lower operating costs and bigger profits. Get the details today! Call the factory, or the distributor nearest you. An experienced, competent expert is ready to serve you.
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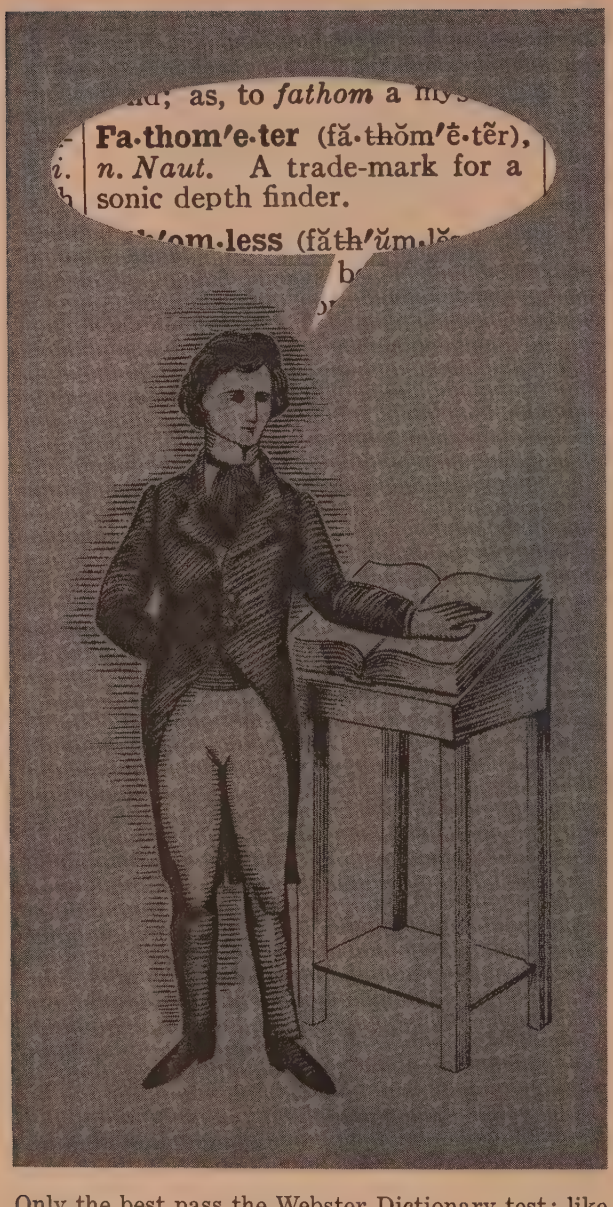

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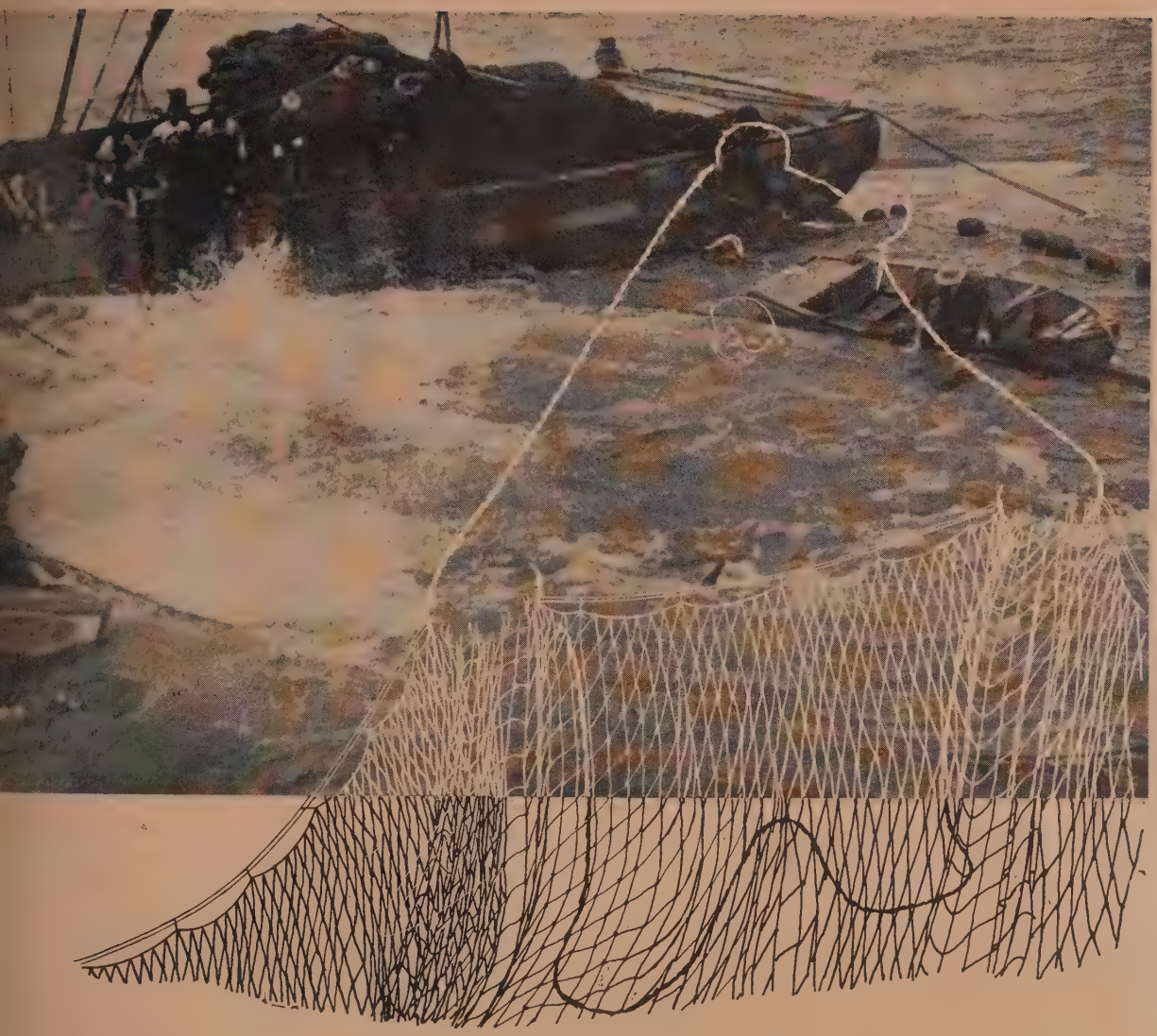

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"NONE BETTER THAN SEA KING"

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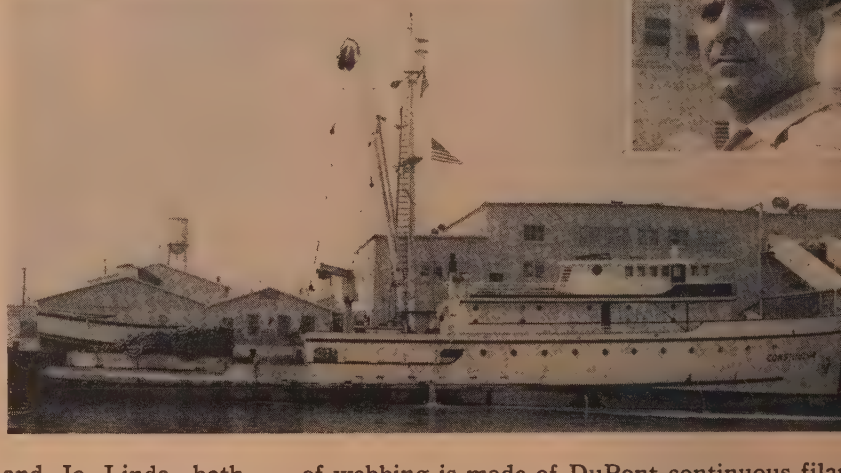
Says Gus Guidi, skippe
the *Jo Linda* (130 ft.
280 tons capacity) :

"I have now used my Fish
& Twine Co. net for 14 t
and I will say it is tops
pared to other nets I
used. I have made se
100-ton sets with it and
had the slightest trouble
problem with chafing,
I've had to replace very
webbing. After all these
the net has held up very
on wear and tear. It i
excellent net, and I am
tirely satisfied."

Says Manuel Neves, master of the *Constitution* (150 ft. long, 360 tons capacity) :

"I don't see how any net could have given me better service than my Sea King. I have made 12 trips since my vessel was converted, with no net replacements, and none in sight. I have made sets as high as 135 tons, several of 105, 115, 120 tons without any trouble whatever. I'm more than satisfied. The net has worked out better than I expected."



Last year, the Constitution and Jo Linda, both using SEA KING nets, were second and sixth, respectively, in tons of tuna landed in the U.S. Naturally, Capts. Neves and Guidi are pleased with their SEA KING nets. SEA KING helped them reach the top in America's biggest money fishery.

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"A Contribution of the Highest Order

— An Editorial, of Pride and of Appreciation —

● In this account of *The Purse Seine Revolution in Tuna Fishing* this journal is privileged to present to its world readership one of the most important and significant reports in its 58 years of publishing to the fishing industry.

Here we provide an account of one of the most extraordinary developments which has ever come to fishing—extraordinary because of the over-turn it has produced in one of the world's major fisheries; extraordinary as well for the speed with which that over-turn was accomplished.

This amazing development concerns the shift in United States tropical tuna fishing from primary reliance upon live - bait, hook - and - line fishing to mechanized purse seining. This report, the work of Richard McNeely, a fishing gear development specialist of the United States Bureau of Commercial Fisheries, we entitle *"The Purse Seine Revolution in Tuna Fishing."*

Pacific Fisherman is proud to publish Mr. McNeely's study because we know it will be read throughout the world by men awake to the profound implications within this revolution; and because through it we are able to provide the world with the first comprehensive analysis of this revolution from its inception in 1956 to its virtually complete conversion of the tuna clipper fleet in 1961.

● Development of fishing gear and fishing methods usually comes slowly, through the processes of *evolution*—gradual changes, extending successful experiments, a little at a time.

However, twice since the conclusion of World War II changes in fishing gear and methods have come so rapidly and so completely as to attain the character of *revolution* rather than by the slower revolutionary process.

The first of these was the swift shift from natural fibers to nylon in salmon gillnets, and indeed in almost all manner of gillnets throughout the world.

The second was the amazing revolution which we examine in detail here, that converted the primary tuna fleet of the United States from clipper to seiner, reversing the threadbare economics of live-bait fishing and brought the prosperity of purse seining.

Here again nylon has been the key, for as you will read in the following pages Mr. McNeely's analysis shows that, of the several factors contributing to the revolution, the nylon net was controlling.

● Sensing the remarkable character of this revolution in United States tropical tuna fishing, and the widespread interest in it among fishermen throughout the world, the United States Bureau of Commercial Fisheries, and specifically its Branch of Exploratory Fishing and Gear Research in Seattle, Wash., late in the summer of 1960 assigned Richard McNeely to the study of the purse seine revolution in tuna fishing in all its aspects; and the preparation of a report on its causes, means and methods.

We present here the fruits of that assignment.

Mr. McNeely is an experienced student of fishing gear and methods, who has participated in gear research and development experiments in most of the major fisheries of the United States. In undertaking his study of tuna seining, which extended over a period of several months, he took hundreds of pictures of actual operations off California, Mexico and Central America. Then ashore additional time was employed interviewing boat yard operators, equipment engineers, naval architects, netting experts, fishermen, officials and scientists. Back at his headquarters in Seattle he had the benefit of the advice and council of D. L. Alverson, base director of Exploratory Fishing and Gear Research.

The products of his work are here for you to read and study.

Pacific Fisherman is proud to bring them to you, and appreciative to Mr. McNeely and the United States Bureau of Commercial Fisheries for the privilege of doing so; for truly *"The Purse Seine Revolution in Tuna Fishing"* is a contribution of the highest order to the literature of modern industrial fishing.

igure 24—Towing with the seine skiff keeps seiner square with the net and prevents drifting over the net during ursing operations.

Purse Seine Revolution In Tuna Fishing

By
RICHARD L. McNEELY

California's tuna "clipper"[1] fleet has ut into use purse seine gear and ethods which may have a profound ffect on ocean seining throughout he world.

A fishery which for over 30 years as predominantly conducted by the olorful pole-and-line (bait boat) ethod, has successfully adopted in ecent years fishing gear and techniques which required conversion of the majority of its pole and line "clippers" (figure 1) to seiners (figure 2), and the training of many fishermen to a method foreign to them. The mass conversion (1959, 1960, and 1961) of the California clipper fleet, which progressed at an almost unbelievable rate, is an unparalleled event in the history of major United States fisheries.

It is the purpose of this article to document a radical change in a major United States fishery and to provide descriptive information on: (1) structural changes during conversion of clippers, (2) deck equipment, (3) fishing paraphernalia, and (4) methods used by the contemporary long-range tuna seine fleet (figure 3).

• Vessels used in the early California tuna fishery were small flush-decked craft with the house forward and low freeboard aft (Godsil, 1938). A single bait tank was mounted on the stern and fishing was carried out from the deck. As larger vessels were built,

Mr. McNeely is Gear Development Specialist, Exploratory Fishing and Gear Research Base, U. S. Bureau of Commercial Fisheries, Seattle, Wash.

[1] Large long-range vessels regularly engaged in live bait fishing for Yellowfin tuna (**Neothunnus macropterus**) and Skipjack tuna (**Katsuwonus pelamis**) on a year-around basis.

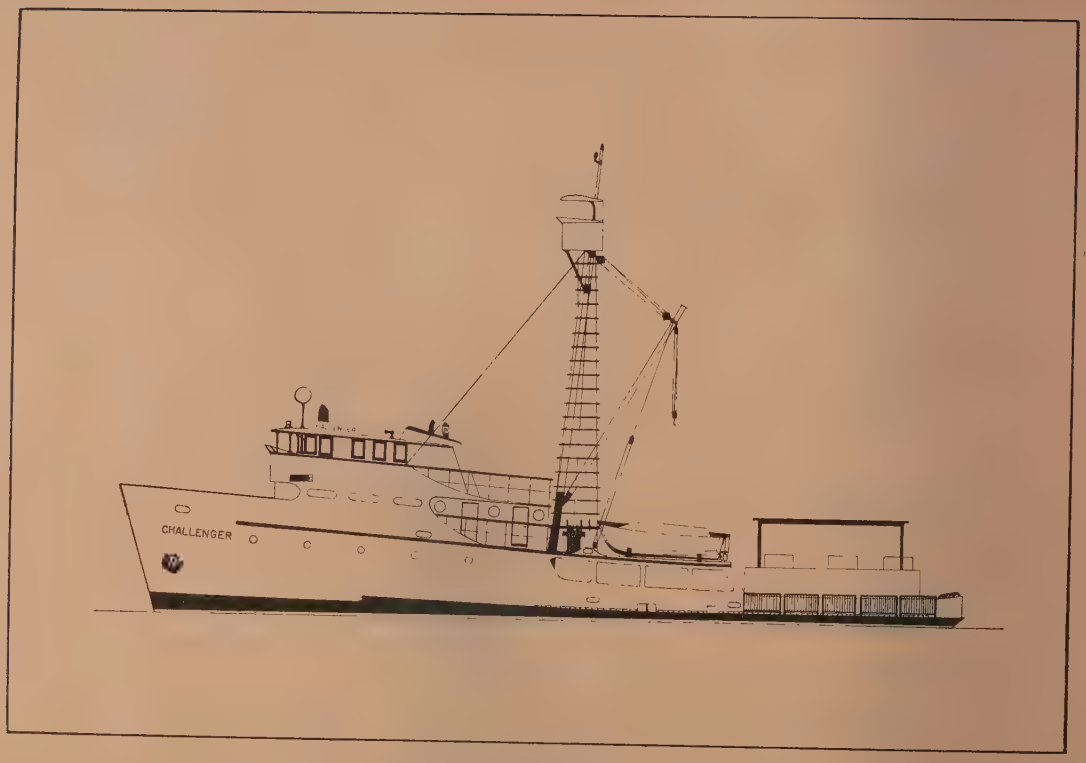


Figure 1—Tuna "clipper" **Challenger** before conversion.

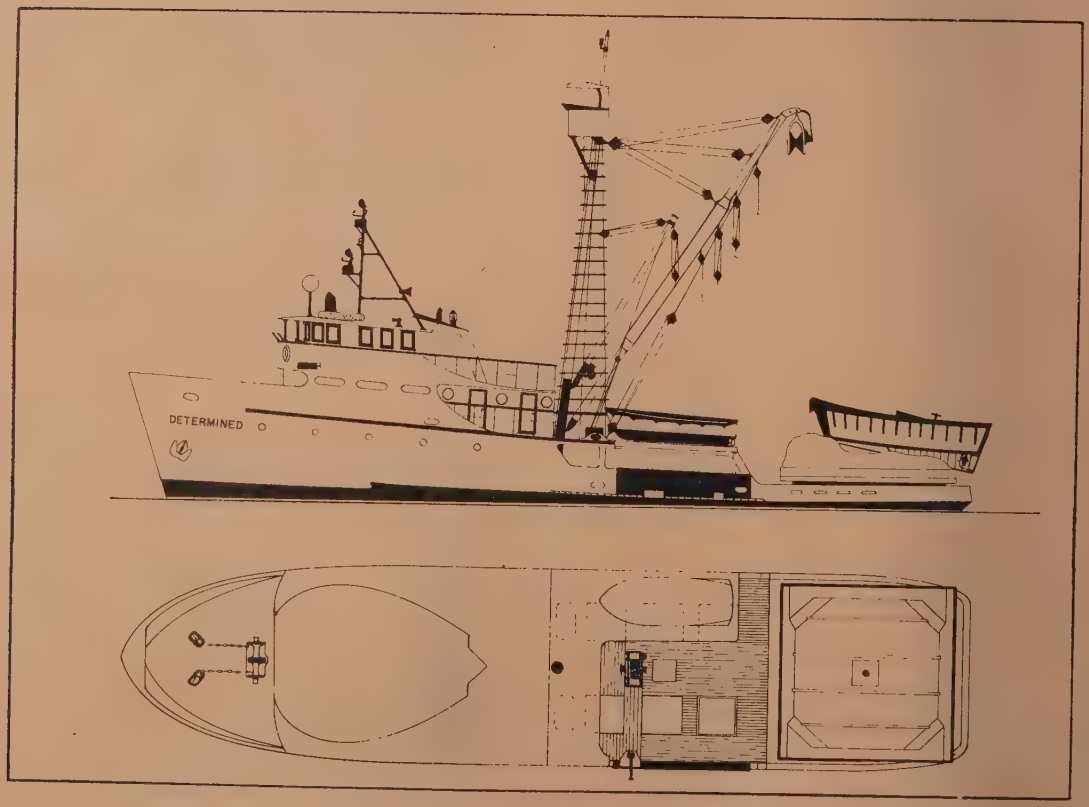


Figure 2—Tuna seiner **Determined** (formerly **Challenger**) after conversion.

Figure 3—Contemporary seiner **Cape Beverly** on maiden voyage after conversion.

e engine was moved farther forward give increased hold capacity and e house was generally enlarged. ventually the pilothouse was con-ructed atop the main house. By 1940 e long-range tuna clipper had be-me the queen of Pacific Coast fish-g vessels.

Clippers which range to 150′ in ngth have raised boat decks forward nning aft past amidships. Main decks e extremely low aft, and several ised wells are mounted on the stern carry live bait.[2] A canopy is built er the bait wells and fishing is con-ucted from steel racks hung over-ard from the bulwarks on the port de aft and around the stern. Fishing raphernalia is relatively simple, con-sting of bamboo poles and lines from hich live bait or "squids" are fished.

Although purse seining for tuna on seasonal basis by medium-sized "lo-l" boats has been practiced for many ars, pole-and-line fishing dominated e California tuna fishery until 1959 Alverson 1960). Shimada and haefer (1956) report that bait boats ught between 86 and 90% of the nual landings of Skipjack and Yel-wfin tuna in the years between 1931 and 1954. Large clippers operate in waters from Mexico to well south of the equator, and smaller bait boats fish local waters off California and Mexico.

During the 1940's long-range tuna seiners using large nets attempted fishing tropical waters. However, their use for the most part was discontinued in the latter part of the decade in favor of live bait fishing (Scofield 1951). Fishermen attempting to seine the year around in more southerly waters were discouraged by rapid deterioration of cotton nets and shark damage (figure 4) which allowed

Figure 4—Shark-damaged fish. Shark attacks on a net full of fish often caused loss of entire catch as fish spilled through rips which developed in **cotton** nets. Greater strength of **nylon** has reduced but not eliminated this serious problem.

[2]Bait wells may also be used to carry refrigerated fish.

Figure 5—Vessels undergoing conversion in California shipyards.

large catches to escape through
in the net.

Growth of the California tuna
dustry continued until about 19
when a peak catch of 307 mill
pounds of Yellowfin and Skipjack
landed by the United States fl
(Shimada and Schaefer, 1956).
maximum number of clippers in
fleet occurred in 1951 when 228 bo
were active. Production of tropi
tunas (Yellowfin and Skipjack)
the number of vessels in the fleet
clined in subsequent years principa
as a result of economic difficul
(Broadhead and Marshall, 196
Availability of low-cost foreign
ports and competition with other p
tein foods eventually drove domes
tuna prices to (and in some instan
below) $250 per ton for Yellowfin
$210 per ton for Skipjack. Th
prices represented a near break-ev
point for many of the clippers,
some boats were operating at a lo
The economic problems confront
the fishery and other complexit
(Orange and Broadhead, 1958) stim
lated fishermen to consider more
ficient methods for improving th
operations.

First Nylon Tuna Seine

● Early in 1956 the 120′ seiner *A*
thony M. fished South American w
ters equipped with the first all-nyl
tuna purse seine. In addition, the *A*
thony M. was equipped with a Pure
"power block"—a mechanical dev
for power hauling of seines—whi
was gaining wide acceptance in
Pacific Northwest salmon-seining fl
(Schmidt 1959). The success of
new gear used by the *Anthony*
was hailed by her skipper, Ant
Misetich, as being the salvation of
tuna purse-seine industry (*Pac*
Fisherman, April 1956).

First Conversion of Clippers

In 1957 the tuna clipper *Sun K*
was converted to a seiner. Bait ta
and bait-fishing gear were remo
and replaced by a purse winch, tu
table, power block, nylon seine,
seine skiff. Successful fishing op
tions (based in Peru) by the *Sun K*
after conversion, and general g
fishing enjoyed by the local sei
during this period, stimulated the c
version of the first American-ba
clipper, *Southern Pacific*. The suc
of the *Southern Pacific* and the
few vessels to follow suit starte
chain reaction which resulted i
mass conversion of clippers to sein

The rate of conversion peaked ab
the middle of 1960. By April, 19

pproximately 75 vessels were con-
rted or undergoing conversion (fig-
e 5) and there were approximately
vice as many long-range seine vessels
the fleet as clippers (table 1). In
rms of carrying capacity, the ratio
even larger. About 10 vessels con-
dered suitable for conversion are
ill operating as live bait tuna clippers.

Vessel owners contemplating con-
rsion of their clippers to seiners con-
der hull modifications, changes in
sh-carrying capacity, rigging of net-
andling facilities, and costs. The
conomic feasibility of conversion to
ine gear is often determined by the
ssel's fish-carrying capacity. In
eneral, vessels with carrying capaci-
es less than 150 tons of fish are not
nsidered good risks for conversion
seiners. Those vessels capable of
andling in excess of 200 tons, and
hich are in sound condition can
sually justify the expense of rather
xtensive modifications.

onversion Details

Details of conversion vary, as ves-
ls of several designs are involved.
aval architects usually provide engi-
eering drawings and supervise con-
rsions. During the initial phase of
nversion, bait tanks, piping, circu-
tion pumps, fishing racks, and ac-
ssory gear are removed,[3] leaving a
ear afterdeck on which seine-fishing
ar may be installed. Amidship upper
ecks are partially cut away on the
rt side aft. The remaining upper
eck space aft is used for the auxiliary
eed boat and storage of accessory
ar. Guard rails are installed around
e exposed sections of the upper
cks.

ull Modifications

Most vessels undergoing conversion
quire slight if any modifications to
e basic hull structure. However, a
w vessels with excessively sharp
uiser sterns require sponsoning and
oadening of the stern to accommo-
te the square turntables and to in-
ease stability. Extra fuel tanks are
metimes built into sponsoned sterns
increase the range of the vessel.

Departures from the conventional
iner design in recent conversions are
e result of innovations involving
h-carrying capacity and safety of the
ssel. Water-tight void spaces under

[3] A few of the later conversions retain the forward bait tanks, circulating pumps and upper decks (figure 6D)

Table 1—Long-range California- and Puerto Rico-based vessels engaged in the Eastern Tropical Pacific tuna fishery during the years 1950 - 1961

Year	Bait Boats	Purse Seiners	Total
1950	204	67	271
1951	228	78	303
1952	202	64	266
1953	190	64	254
1954	182	69	251
1955	172	63	235
1956	175	64	239
1957	170	50	220
1958	159	44	203
1959	140	53	193
1960	70	83	160
1961*	48	98	146†

Source: Inter-American Tropical Tuna Commission.

*As of January, 1961, and not including three bait boats under conversion to seiners.
†Does not include about 22 other (mostly under United States flag) based in Costa Rica, Mexico, and Peru.

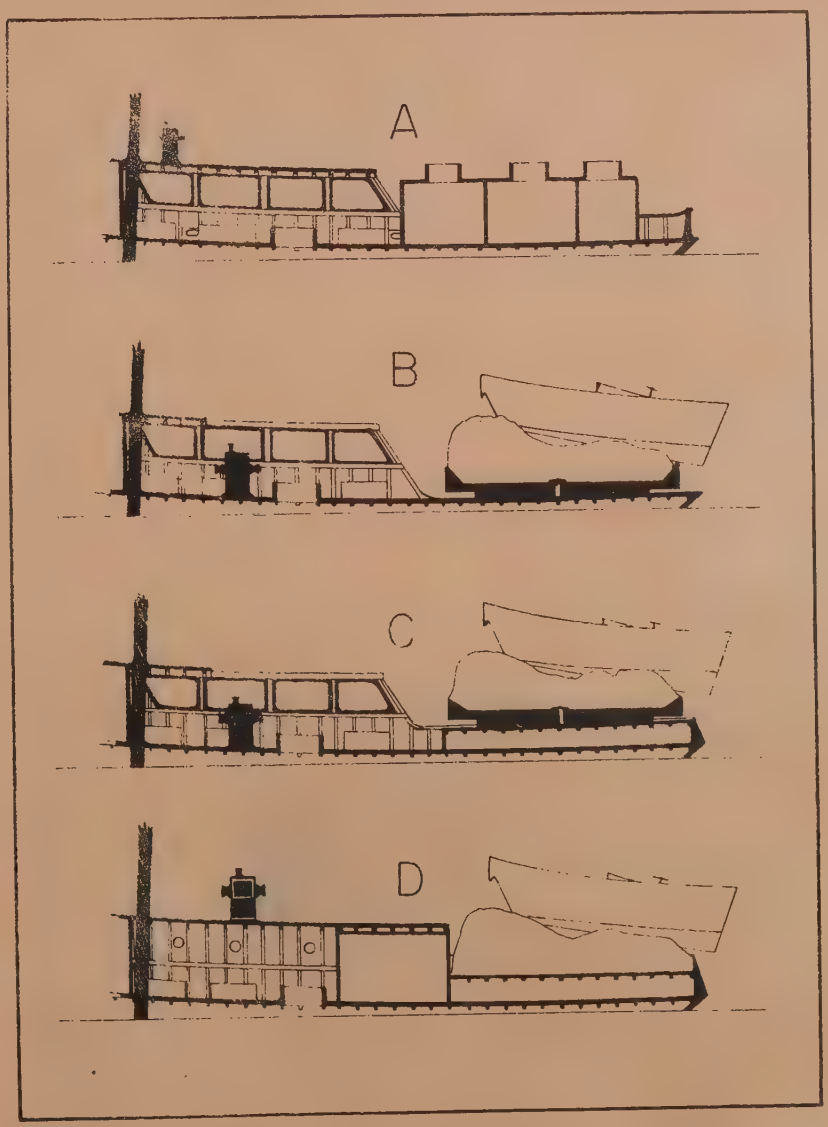


Figure 6—Stern cross sections showing: A—Typical tuna clipper. B—Turntable, net and skiff on early conversion. C—Water-tight void space under turntable improves vessel safety. D—Enclosed lower deck, raised net platform, and deck-mounted fish well increases fish-carrying capacity.

Figure 7—New seining boom ready for installation on vessel undergoing conversion.

turntables (figure 6C), raised platforms, and completely enclosed lower decks (figure 6D) improve vessel safety and fish-carrying capacity.

Masts and Booms

The masts and booms of clippers are inadequate for seining operations, making it necessary to install new ones more suited to the task. Seining masts and booms are fabricated of double-strength tubular steel with multiple diameters fitted one inside the other and welded at the external joints. Seining booms (figure 7) are long enough to extend from the pivot pin on the mast to the stern rail (when lowered), and strong enough to lift the combined weight of the seine's lead line, dropper chains, purse rings, and a sizeable section of webbing. Great strength is required during net-hauling and "drying up" operations and for lifting aboard the heavy seine skiff.

Special hangers are welded to the block end of the boom for attachment of the power block and to secure it when not in use. Eyes for attachment of topping (vertical boom positioning) and vanging (horizontal boom positioning) blocks and single and double utility falls are made of steel plate and are welded to the boom. Three-point suspension topping blocks are installed.

High-pressure hydraulic lines running the full length of the boom transfer hydraulic pressure from shipboard-mounted hydraulic pumps and controls to the power block. Flexible hydraulic hose and high-pressure fittings are installed between the power block and boom lines and between the base end of the boom and shipboard supply lines. Hydraulic controls for the power block are usually mounted the raised deck rail near topping vanging winch controls. Topping vanging winches for the large bo are power operated. Electric or draulic drives are used.

Small Booms

In most instances a clipper's s cargo boom is inadequate for fish-brailing operation in seining, is usually replaced. However, exis electric, hydraulic, or air-motor ping lifts are retained. For van the small booms, hand-operated bl are attached to the ratlines on ei side of the upper deck. Although s booms are usually equipped power-operated winches for c handling and unloading fish, brai of fish is more often accomplis using a gypsy (figure 11) on the stalled seine winch, due to its gre flexibility in control of the brail.

Typical Seine Winch

● Seine gear operations requi heavy-duty winch (figure 8) ha a minimum of three drums, two sies, and two heavy-duty lashing (Dahl 1954).

Drums—Three drums are mou on two parallel driveshafts run fore and aft in the winch hou (figure 9). The single purseline d located on the port driveshaft h about 600 fathoms of wire rope pu line made of two end sections m uring 160 fathoms and 330 fath long (figure 27) ⅝" diameter vanized steel and a 110-fathom ce section made of ¾" stainless steel rope. Two drums, located on the board driveshaft, have indepen drives and controls. The forward d in the double drum section is to haul in the bunt-end purse while the after drum is used to approximately 200 fathoms of galvanized steel wire rope to cable.[4] Roller fairleads on the or on top of the winch guide ca from the starboard drums past port drum and through a purse b and towing block mounted on the p davit by the port rail. Level-w fairleads are driven manually or hydraulic or air motors and usu are installed on the port drum c Clutches and brake shoes on the p ing drums and towing drum are o ated manually or by hydraulic or cylinders. One newly designed w has small control levers, mounte

Figure 8—Heavy-duty winch installed on tuna seiner, looking aft.

[4]Some vessels use a small additio winch to hold towing cable.

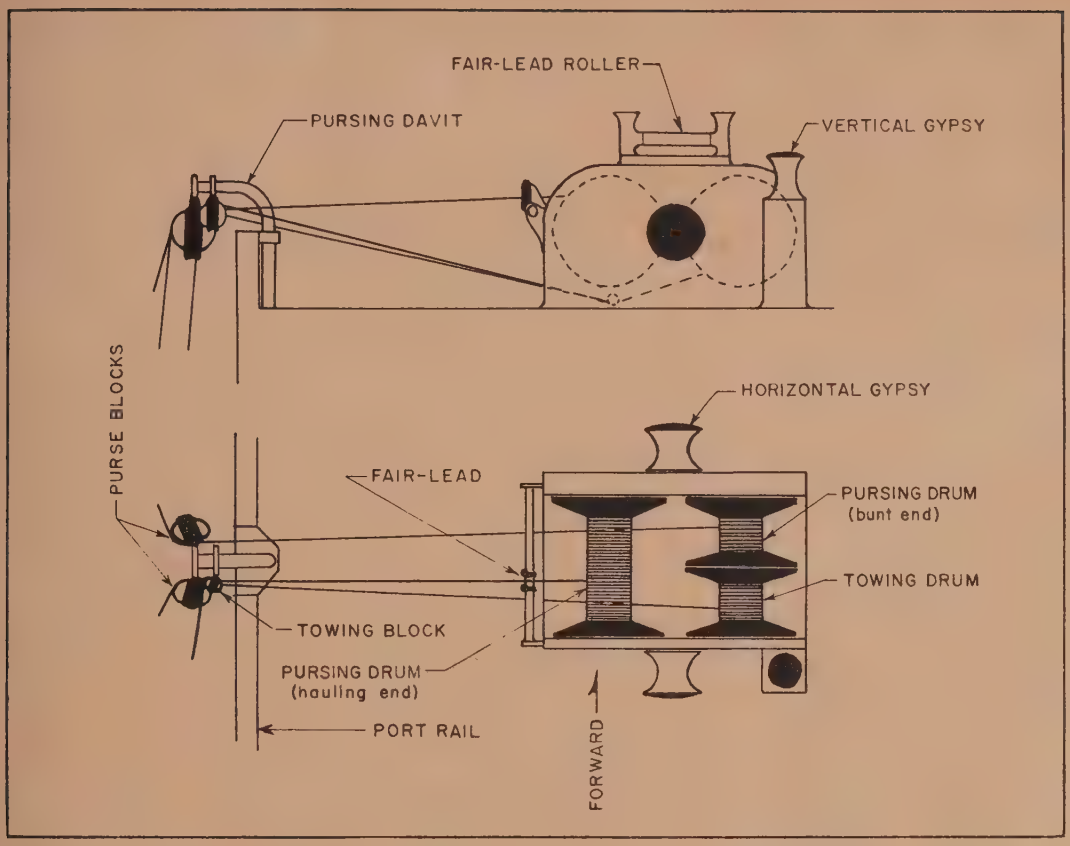


Figure 9—Purse-seine winch drum and cable arrangement.

control console (figure 10), to allow operation of all drums simultaneously by one winch operator.

Cargo drum—A fourth drum (cargo drum) of small diameter is sometimes located above and between the two large drum sections. It is used principally for operation of a "choker" rope during "sacking up" operations. Fairlead blocks on the starboard rail lead the choker rope along the starboard rail aft and then to the port rail where trapping and choking operations are performed.

Gypsies — Two 12-inch horizontal gypsies, and sometimes an additional 10-inch vertical gypsy, are mounted on the winch for general utility hauling. The forward horizontal gypsy is used more frequently than the other two and has sea water piped to it for cooling purposes during long periods of holding (figure 11). Nylon, manila, and wire ropes are commonly hauled on the seine-winch gypsies. When hauling of wire rope is anticipated, surfaces of gypsies are hardened.

Power supply—A variety of power supplies are utilized to operate seine winches. One of the more common drives is the electric motor which, due to the small space available in the shaft alley beneath the winch, is applicable as well as economical. Some vessels employ hydraulic motors or diesel engine drives coupled through line shafting or mounted directly beneath the winch. The vulnerability of electric motors and controls to damage from salt water, and the advantage of controllable speed and torque in hydraulic drives makes installation of the latter power source desirable.

Hydraulic Drives

● Several years before the large-scale conversion of clippers to seiners began, an attempt to use an hydraulic drive on a tuna vessel's purse-seine winch failed due to design limitations imposed by hydraulic components available at that time. After this failure, hydraulic drives were unpopular. Successful reintroduction of hydraulic drives occurred in 1956 and 1957 after acceptance by the fleet of the hydraulically-driven Puretic "power block." In 1958, hydraulically-driven boom topping winches (figure 12), boom vanging winches (figure 13), and corkline pursing winches (figure 14) were introduced, and subsequently have become standard equipment

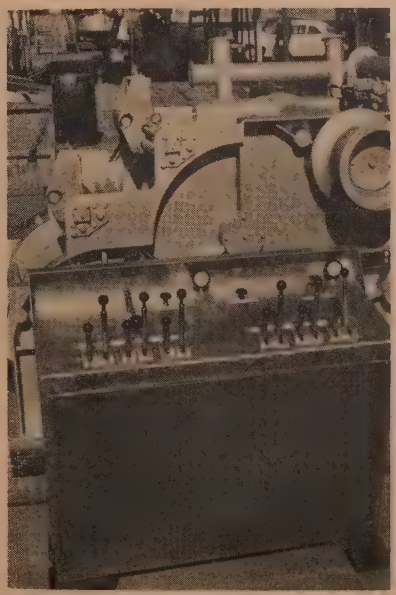


Figure 10 — Winch control console. (Photo courtesy of Marine Construction & Design Co.)

Figure 11 — Winch gypsy used for general utility hauling.

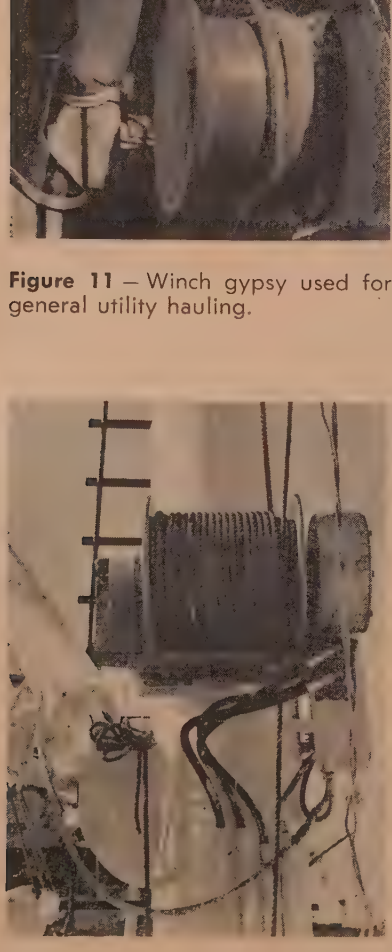


Figure 12—Hydraulic boom topping winch. (Photo courtesy of Marine Construction & Design Co.)

Figure 13—Hydraulic boom vanging winch. (Photo courtesy of Marine Construction & Design Co.)

Figure 14—Hydraulic corkline pursing gypsy. (Photo courtesy of Marine Construction & Design Co.)

on most of the converted seiners. T first successful hydraulic purse-sei winch drive was installed in ea 1959. Since then, complete cen hydraulic systems (figure 15) h become more popular in the fleet. the present time about 50% of ves undergoing conversion and all n tuna purse-seine vessels are be equipped with complete central draulic systems.

The main pump unit in a typi central hydraulic system provi power for the purse winch, pow block, and small auxiliary winches. case of failure of the main pump u a standby pump unit is provided to driven by an auxiliary genera through clutches or removable b drive. Transfer to the standby syst is completely automatic. Basic hydr lic power units consist of two gallons-per-minute, 1,200-pounds-p square-inch pumps and one 11 g.p. 1,200 p.s.i. pump. The 11 g.p.m. pu provides service to the vang winch topping winch, and corkline win The 36 g.p.m. pumps provide pow to the power block and to the pur seine winch. The purse-seine win controls allow three speed ranges a two torque ranges. Hydraulic pow is transmitted through welded st tubing and high pressure hydrau hoses. A large hydraulic oil reserv also functions as an oil-to-air h exchanger and for settling contam nants and air from the hydraulic Complete filtration systems protect t hydraulic components from dirt. F ters are generally of the indicati type for visual inspection.

Fore-Deck Equipment

Operation of purse-seine gear quires installation of fore-deck cleats, rope fairlead sheaves, and co purseline winches. Some vessels u existing anchor-winch gypsies to pu corklines.

When one or more sections of co line are to be pursed, pursing lines a pulled aboard through a port sheave on to the anchor-winch gyp (figure 16) or hydraulic gypsies.

Purse Davit

Davits (figure 17) for suspensi of purse blocks and towing blocks a usually constructed by bending a hea steel pipe to form a right angle elb and welding a steel plate stiffen across the bent section for extra su port. Eyes for attachment of the pu blocks and towing block are made heavy steel plate and welded to t pipe on the outboard end and aft side of the davit. A small eye on t

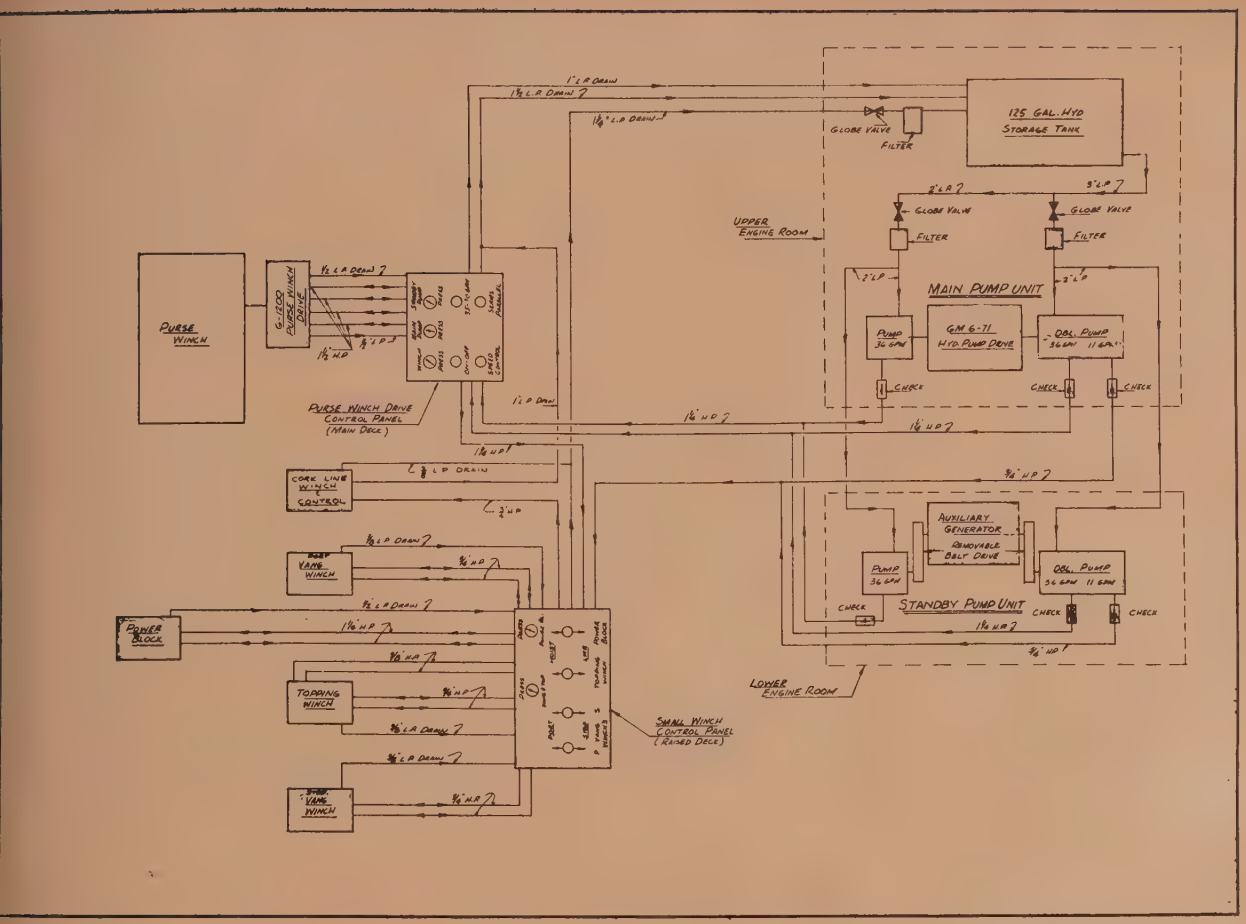


Figure 15—Typical central hydraulic system. (Diagram courtesy of Marine Construction & Design Co.)

upper side of the bent section, made of steel rod bent in a "U" shape, is generally welded in place for attachment of rewinding snatch blocks. Net end attachment hooks made of steel rod bent in the form of a "J" are welded just above the upper pivot bearing near the rail.

A rail-mounted upper support bracket contains an upper bearing support and a square-shaped position-locking recess. The male part of the square position-locking section is made by welding a steel plate, having a hole in the center, to the davit at rail level. The straight lower section of the davit is stepped in a deck-mounted bearing. A foot lever is installed to allow raising the entire davit slightly, permitting it to swing inboard and to be lowered and locked in the inboard position.

Heavy-duty purse blocks having a pitch diameter of approximately 16" are mounted fore and aft on the outer hanger eyes and a single towing block somewhat smaller in diameter is at-

Figure 16—Anchor-winch gypsy used to purse corkline.

Figure 17—Heavy-duty davit supports purse blocks and towing block on port rail in line with winch.

tached to a third hanger eye on the after side of the upper davit.

● Although some of the later conversions (1960-61) eliminate turntables, the majority of converted vessels install conventional turntables measuring approximately 25 by 25′ square (figure 18). Table frames are built of heavy timbers and planked with 2″ wood planking. Metal caps having seine skiff guide grooves are fitted over each end of the table to withstand wear. Eight or more heavy-duty steel roller support pedestals secured to the deck beneath the turntable support the table near its lower perimeter. A circular track for roller contact is made of steel plate and attached to the bottom of the table.

The center pin on which the table rotates is usually made of two cast steel sections of approximately 8″ and 9″ diameters fitted one inside the other with one section attached to the turntable and the other section attached to the deck. Dowel pin alignment brackets made of steel plate are attached to the table in four places in alignment with dowel sockets secured to the deck. With removal of the dowel pin, free rotation of the table is accomplished using winch power to pull an interconnecting turning cable.

During seining operations, heavy chain and bulky webbing must be pulled over the port rail onto the after deck. This makes it necessary to cut down the hatch coamings in the area to near deck level.[5] Compensation for the height of remaining coamings and covers is accomplished by raising deck grating boards to the hatch cover level (figure 19).

Protection of the port rail of the vessel and nylon webbing from abrasion is provided by fitting a layer of stainless steel or hardwood from the top of the port rail to below the water line along the side of the vessel from the forward edge of the turntable to the purse davit. A heavy steel plate is fitted into the rail to be used as a hammer plate (figure 20) in attempts to scare fish away from the side of the ship before net closure is completed.

Portable fish hoppers are made of either plywood or sheet metal. Plywood hoppers are built in the shape of an angular box (figure 21) and those made of sheet metal are cup-shaped. Most vessels install some sort of deck socket which is used to position, hold, and pivot the hoppers. A common type of socket is fabricated by welding a short section of steel pipe to a deck mounting flange. A steel shaft on the lower side of the hoppers is made to fit loosely into the socket. The hoppers are attached to 10″ radius semi-cylindrical sheet metal chutes fitted together in sections to direct the fish to brine wells. Support for the joints of the chutes are made of telescoping pipe sections welded to a steel base plate. A series of small pin-holes are drilled in the upper sections of support pipes for regulation of height. A curved "Y" frame, welded to the end of the upper section, fits the curved chutes. Similar pedestals aer used to help support the hopper. Lifting bridles attached to the edge of the hopper, are made of nylon rope with a steel ring lashed to each bridle center.

[5]This operation is not performed on vessels which enclose the lower deck (figure 6D).

[6]A few aluminum and stainless steel seine skiffs are also used.

Seine Skiffs Are Large

● Fiber-glass and plastic sheathed plywood seine skiffs[8] measuring approximately 20′ in length, 15′ in width and 4′ in depth are used. Tapered skegs made of steel are fitted to the bottom of the skiff paralleling the tapered keel (figure 22). Tapering of the keel and skegs is necessary to allow the skiff to pass freely over floating corklines of the seine (figure 23). Removable cages are placed around propellers to prevent contact with webbing.

The bow of the skiff is fitted with a heavy steel plate and eyes for attachment of chain bridles. These provide great strength while the skiff is being towed or hoisted. During hoisting the entire weight of the skiff is supported by the bow plate and chain bridle. Manila fenders or "bumpers" are fitted over the bow plates.

A towing bitt made of steel pipe, mounted amidships in the skiff, is securely fastened to the keel and braced with a heavy steel plate attached to engine mounting timbers.

Diesel propulsion engines of the skiffs vary between 75 and 150 horsepower, according to the size of the seine vessel and owner's preference. In 1960 a trend developed toward the use of engines of higher horsepower. The principal need for increased power in skiffs is during the towing operation (figure 24). During this operation the skiff tows the seiner by 300′ of ¾" nylon line and maintains a steady pull to keep the vessel square with the net and from being pulled into or drifting over the seine during pursing and hauling of webbing.

A 6" engine-driven vertical gypsy mounted near the center of the skiff is used to assist in corkline pursing operations and for maneuvering the brail during transfer of fish from another vessel. A few skiffs have hydraulic drives for the gypsies.

Rails of the skiffs are fitted with heavy 10" diameter rubber hose to provide a friction surface for webbing which is pulled over it during "sacking-up" operations (figure 25). The hose also acts as a fender for the skiff and during brailing operations provides better footing for the fishermen.

A small rowboat or power boat is carried in most skiffs to assist in corkline pursing and other operations.

Later Conversions

● Since 1959 several innovations in conversion design have appeared. Water-tight compartments are constructed directly under turntables for increased buoyancy during bad weather. Recent

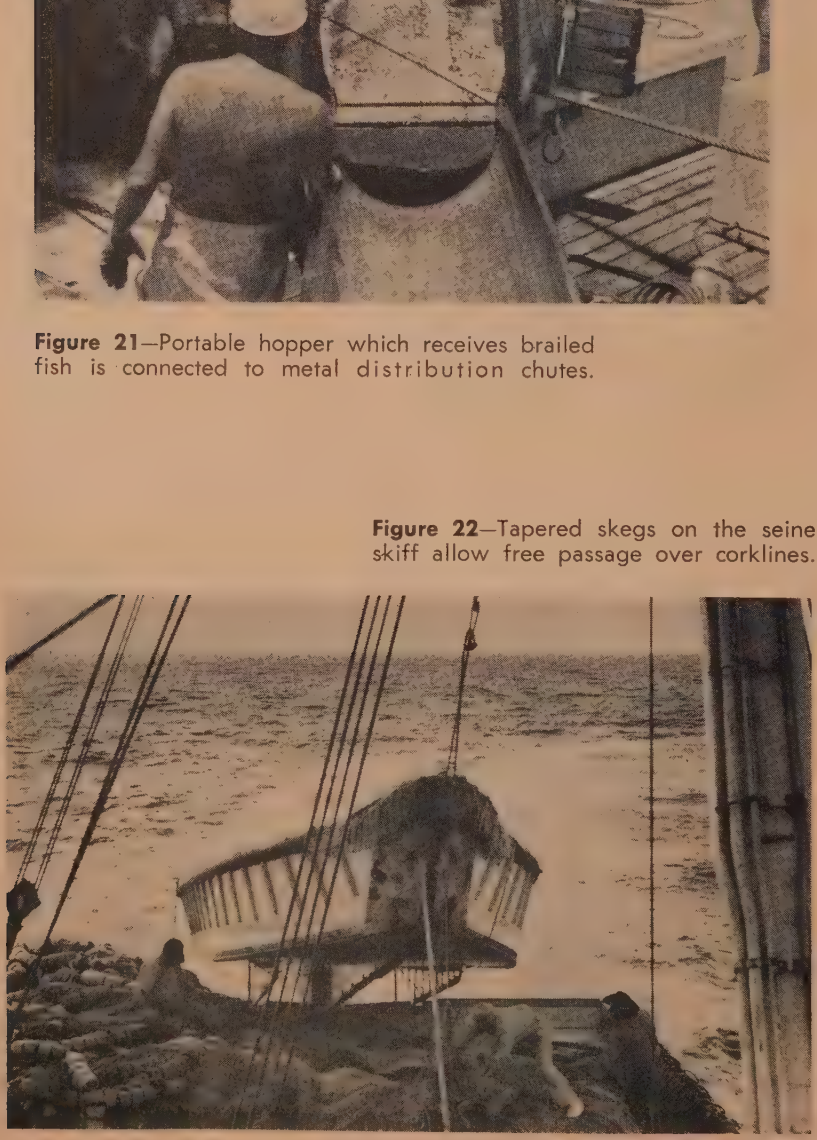
Figure 18—Square turntable as installed on most conversions.

Figure 19—Lowered hatch coaming on port side of after deck provides clear work space for handling bulky seine gear.

Figure 20—Hammer plate installed in port rail is struck to drive fish away from open section of the net.

Figure 21—Portable hopper which receives brailed fish is connected to metal distribution chutes.

Figure 22—Tapered skegs on the seine skiff allow free passage over corklines.



conversions have omitted the turn table altogether by substituting ne platforms or "poop decks." On some vessels the upper deck is extended af to the net platform, lower deck scup pers are sealed, and sides are con structed to enclose the lower deck This arrangement necessitates posi tioning the purse winch and towing winch (when separate) on the upper deck. The boxed-in lower deck area contains one or more of the origina or additional fish-carrying tanks, which increases the vessel's carrying capacity Extra tanks are sometimes installed under raised net platforms.

Innovations appearing since late 1960 include enclosed lower decks net platforms, and the installation of offset king-post type masts.[7] The king post mast, stepped further aft in the starboard side of the vessel, has rigid steel pipe stays or braces (figure 26) In this type of installation the crow's nest is placed on top an "A" frame located on the roof of the pilothouse Open passageways in the "tween decks" section around the fish wells provide access to the seine table and allow passage of fish from a central hopper to fish wells. All lower deck scuppers are sealed, making the area water-tight. On vessels with closed-in lower deck construction, the fish are lifted to the upper deck where they are deposited in hatches. One or more of these hatches leads to "tween decks" fish wells and others lead to distribution hoppers.

Conversion Costs

● Vessel conversion costs vary between $50,000 and $150,000 depending on the hull design, its size and condition, quality of materials and workmanship demanded, and the amount of incidental work performed

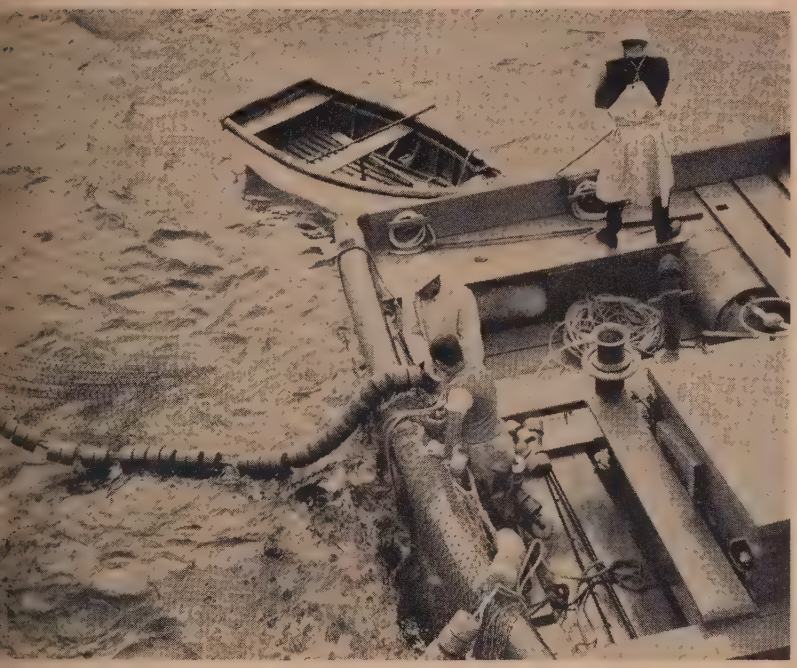
In addition to the expense of vessel conversion, an all-nylon seine (figure 27) or the materials with which to construct it (figure 28) cost between $45,000 and $55,000.

● Basic design characteristics of purse-seine nets used in the California tuna fishery are relatively standard although minor variations exist in construction. Several changes which are becoming accepted procedures in design have been incorporated into the following descriptive material.

Main Body

A typical tuna purse seine is approximately 425 fathoms long and ha

[7] Two vessels have subsequently removed the king-post masts.



igure 25—Pulling webbing over rail of seine skiff during "sacking-up" perations.

Figure 23—Seine skiff leaving inside of net crosses over corkline without entanglement due to caged propeller and tapered skegs.

depth of about 42 fathoms. The ain body sections are constructed y lacing together 7 strips of 100-mesh eep, 4⅛" (stretched mesh)[8] number 2 (about 304 pounds tensile strength) ontinuous filament nylon webbing.[9] o the main body section are laced corkline selvedge strip 10½ meshes eep of 5" mesh, number 60 (about 20 pounds tensile strength) webbing nd leadline selvedge strip 50 meshes eep of number 60, 8" webbing. The orkline selvedge strip is "hung in" to e corkline 10% (10 fathoms of retched webbing is hung to 9 fathms of corkline) and the leadline seedge strip is "hung in" 11% to the /16" chain leadline. The extra 1% of anging in" to the leadline is to comensate for the partially pursed or cup-shaped" configuration of the net tained during setting.

[8]All reference to sizes of meshes will be stretched measure (center of knot to center of knot).

[9]All webbing and hanging twine is continuous filament nylon treated with a synthetic conditioning agent.

[10]Some vessels eliminate the rings and thread the "zipper" rope through the "cutting strip" meshes.

Cutting Strips

Three strips of webbing (cutting strips) 10 meshes wide made of 4⅛" number 60 thread installed between main body sections divide the net into four equal-length parts. Each cutting strip has 20 equally spaced 3" diameter galvanized steel rings (zipper rings)[10] attached to the center meshes. A 45-fathom ⅝" nylon "zipper" rope is threaded through the rings and then is spliced to the corkline and hitched to the leadline.

Bunts

Three bunt sections (sometimes referred to as "the sacks" or "the bags") are constructed by sewing together 4 strips of 4⅛", number 54 thread (about 394 pounds tensile strength) webbing 25 fathoms in length by 100 meshes deep. These sections lie below the corkline selvedge strip. The first bunt is positioned at the bunt end of the net, the second lies just beyond the first cutting strip from the bunt end of the net, and the third beyond the center cutting strip.

Net Ends

Net end pieces are constructed of 5" webbing, number 60 thread, 125 meshes deep by 15 meshes long. The 760½ meshes running from corkline to leadline at the two ends of the net are gathered and sewn to the 125-mesh end section. The "bitter end" of the end section is then gathered and hung to a triangular-shaped galvanized steel end bracket. Thus a tapered configuration is given to the net ends without any actual cutting of the webbing.

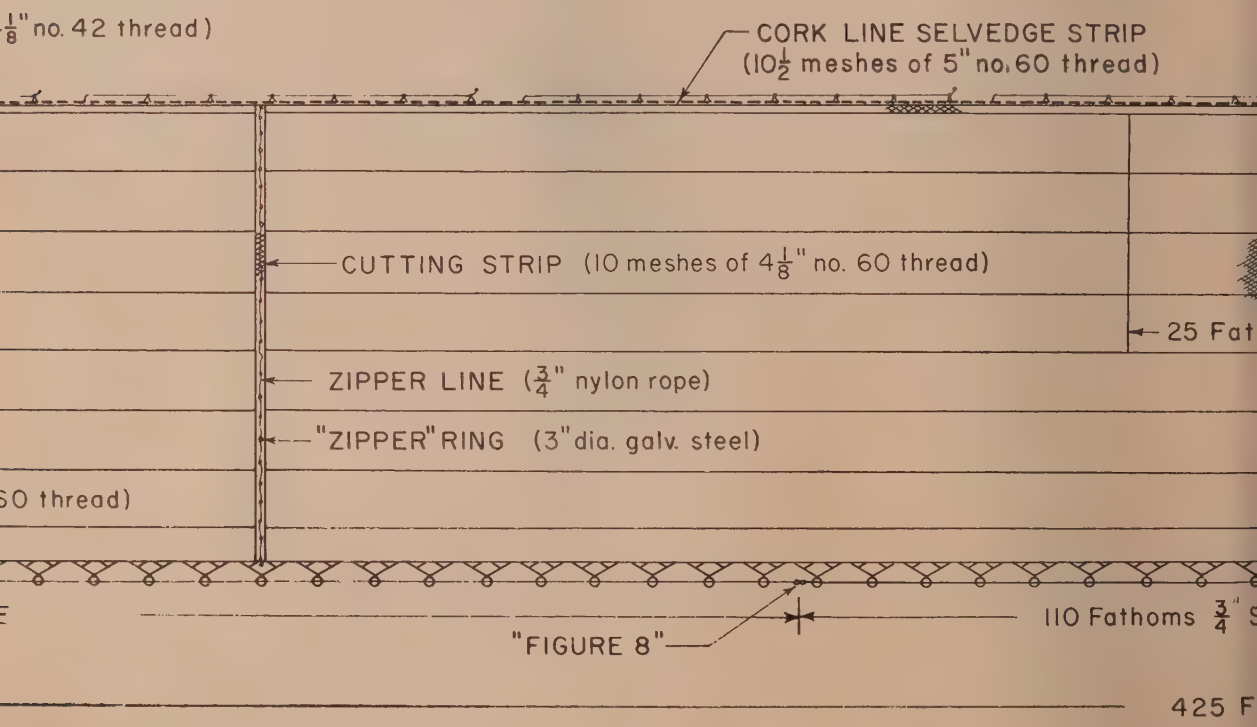
The end brackets are constructed of steel rod, bent and welded to the shape of a triangle. A purseline release, attached to the bunt end bracket, is used to disconnect the purseline from the bunt end of the net at the junction point of the purseline and intermediate hauling line.

Corkline and Floats

A ¾" nylon corkline, 425 fathoms long, is threaded through 7,000 sponge-plastic floats each of which measures 6" in diameter and 3¾" in length with a ¾" center hole (figure 29). Floats are gathered on the cork-

continued on page 45

SEE PAGES 41-44 FOR TUNA PURSE SEINE CONSTRUCTION DETAILS


1/8" no. 42 thread)
CORK LINE SELVEDGE STRIP
(10½ meshes of 5" no. 60 thread)
CUTTING STRIP (10 meshes of 4 1/8" no. 60 thread)
25 Fat
ZIPPER LINE (¾" nylon rope)
"ZIPPER" RING (3" dia. galv. steel)
60 thread)
110 Fathoms ¾"
"FIGURE 8"
425 F

TUNA PURSE SEINE CONS

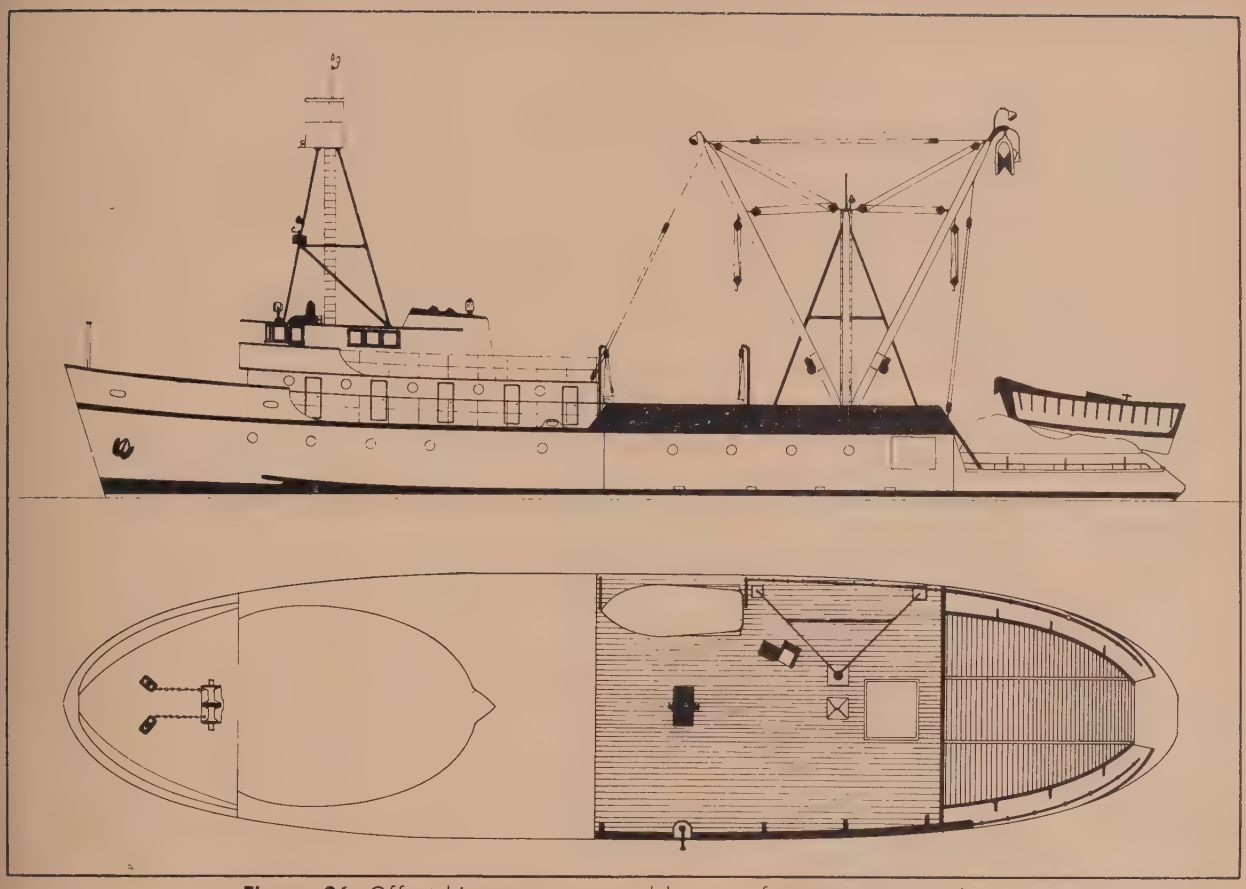
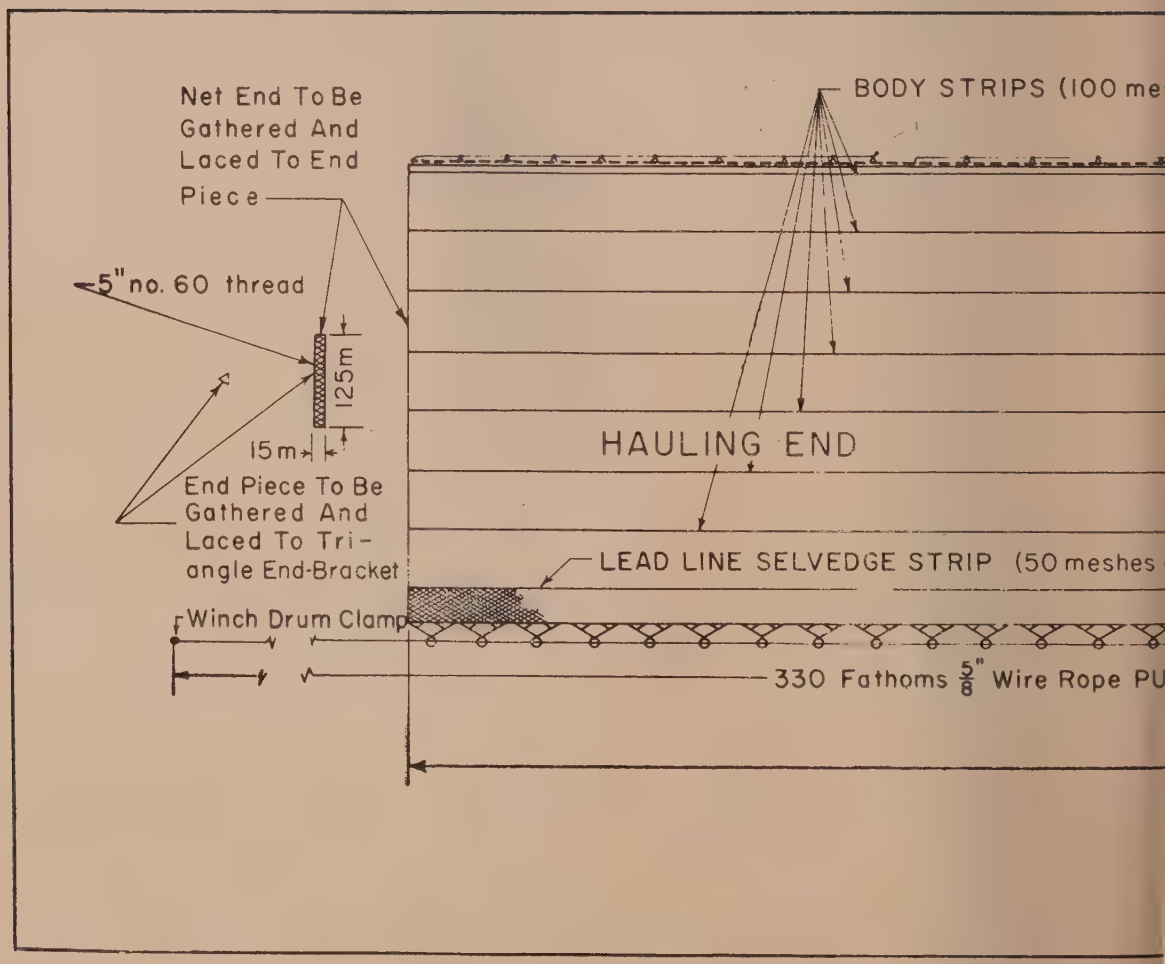
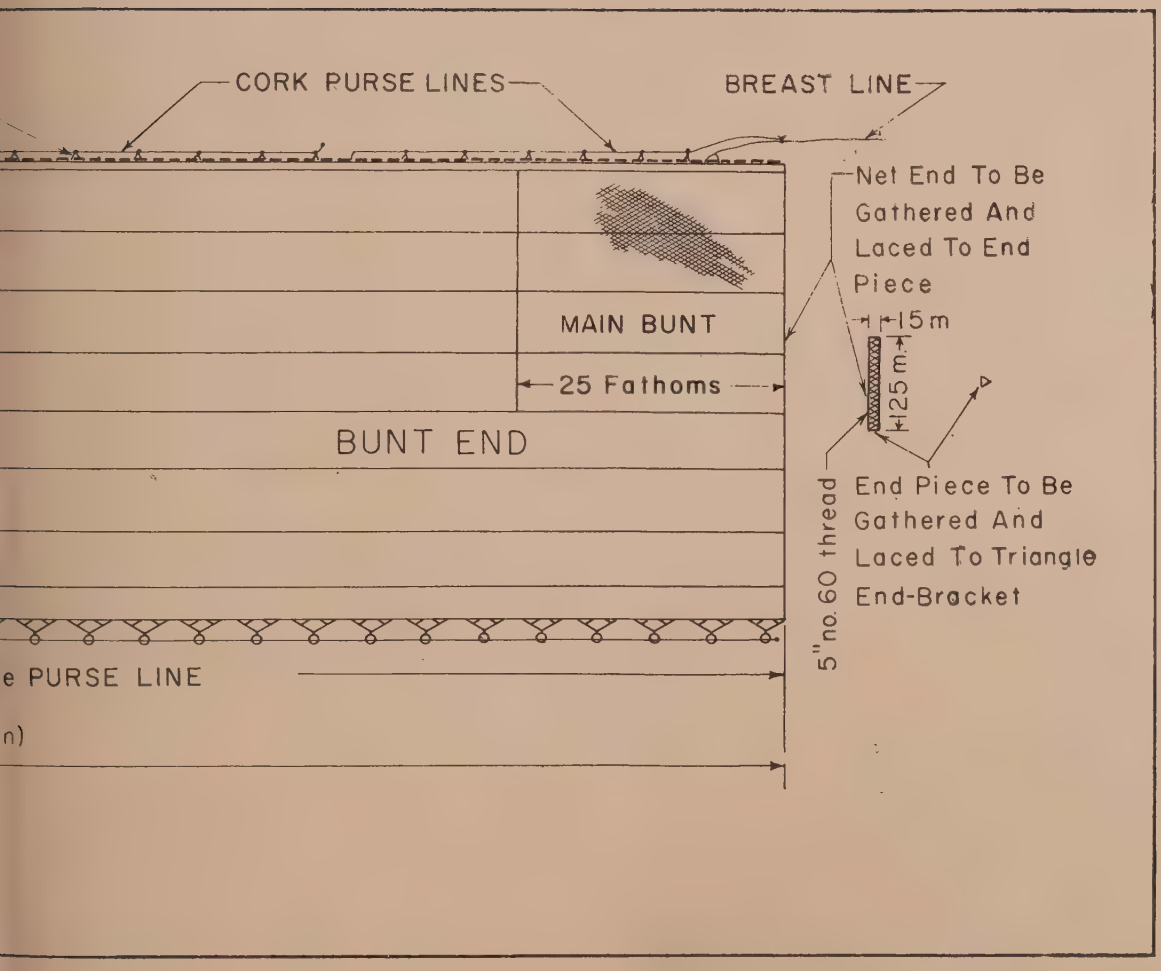


Figure 26—Offset king-post mast and booms of a recent conversion.

Figure 28—Assembly of tuna purse seine in San Pedro, Calif.


Net End To Be Gathered And Laced To End Piece
BODY STRIPS (100 me
5" no. 60 thread
125m
15m
HAULING END
End Piece To Be Gathered And Laced To Tri-angle End-Bracket
LEAD LINE SELVEDGE STRIP (50 meshes
Winch Drum Clamp
330 Fathoms 5/8" Wire Rope PU


CORK PURSE LINES
BREAST LINE
Net End To Be Gathered And Laced To End Piece
MAIN BUNT
.15 m
.125 m
25 Fathoms
BUNT END
5" no. 60 thread
End Piece To Be Gathered And Laced To Triangle End-Bracket
e PURSE LINE
n)

continued from page 39

line in groups of eight which are spaced 10" apart with hangings fastened to the corkline across each pair of floats (figure 30).

Cork Purse Rings, Bridles, Lines

Ring bridles for the cork purselines are made up of one-fathom sections of ½" diameter polyethylene rope, and galvanized steel purse rings ½" by 4" in diameter are then secured to the center of the bridles. The ends of the bridles are finally fastened to the corkline across 4 of the 8 floats in one group.

Ten separate cork purselines are made of ⅝" diameter polyethylene line 42 fathoms in length. A 6" diameter sponge-plastic float is attached to one end of the line and the other end is threaded through 25 successive purse rings and fastened to the corkline. The first cork purse ring is located 10 fathoms from the bunt end of the net. At this point a bow breastline of 1" diameter is attached to the corkline. A 5-fathom extension of this section of cork purseline is used during operation of the gear to connect with the bow breastline.

Leadline Materials and Construction

• The leadline (figure 31) is made up of 7/16" galvanized steel chain extending the full length of the net. To every fourth link of chain, nylon hanging cord, ¼" in diameter, is attached to form a chain-to-net hanging strip. The hangings have 10" of slack between points of attachment (figure 32). Single strand, number 60 nylon hanging twine loosely laces the double-twine edge of the leadline selvedge strip to the hanging cord.

Dropper-chain bridles are made up of 124 links of ¼" galvanized steel chain. These are attached to the chain leadline using split links at 75-link intervals. Spacing between bridles is also 75 links.

Purse-ring bridles made up of 240 links of ¼" galvanized chain are attached to the center of each dropper-chain bridle with split links.

Seventy-five galvanized "long" links 4" long by ⅝" in rod diameter, attached to galvanized steel purse rings, ¾" rod by 10" inches in diameter, are tightly lashed to the center sections of the purse-ring bridle, using number 60 nylon hanging twine.

Figure 29—Corkline construction of giant tuna seine in San Pedro, Calif.

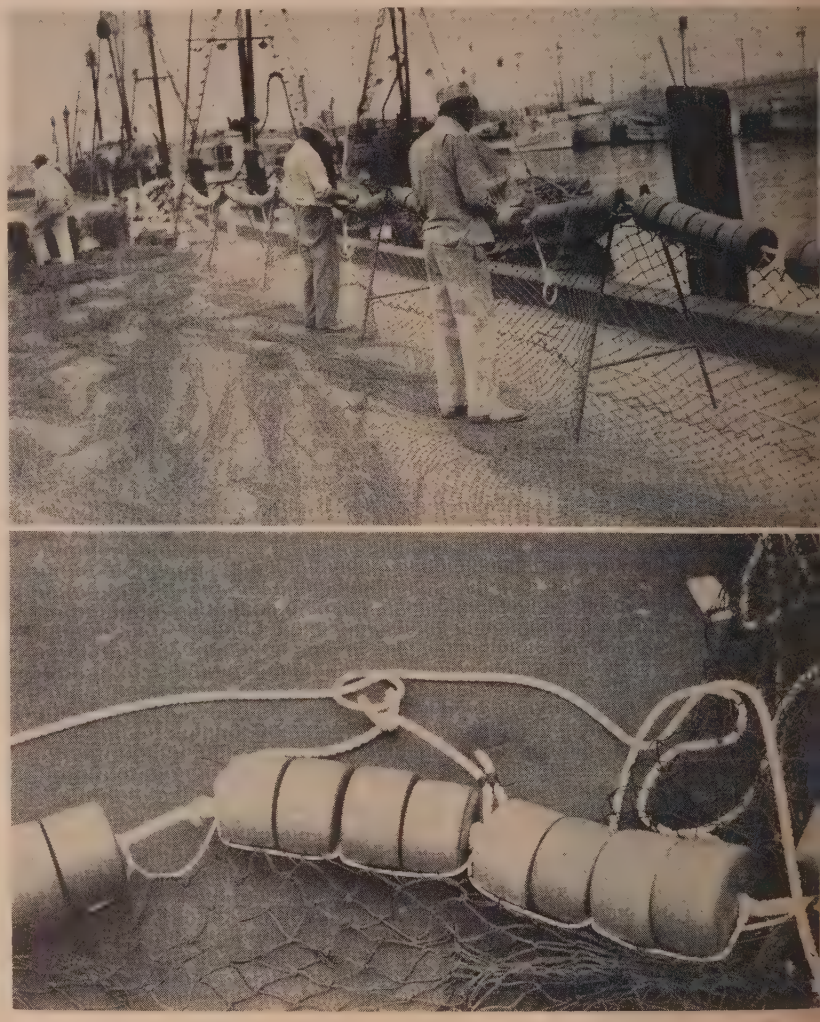
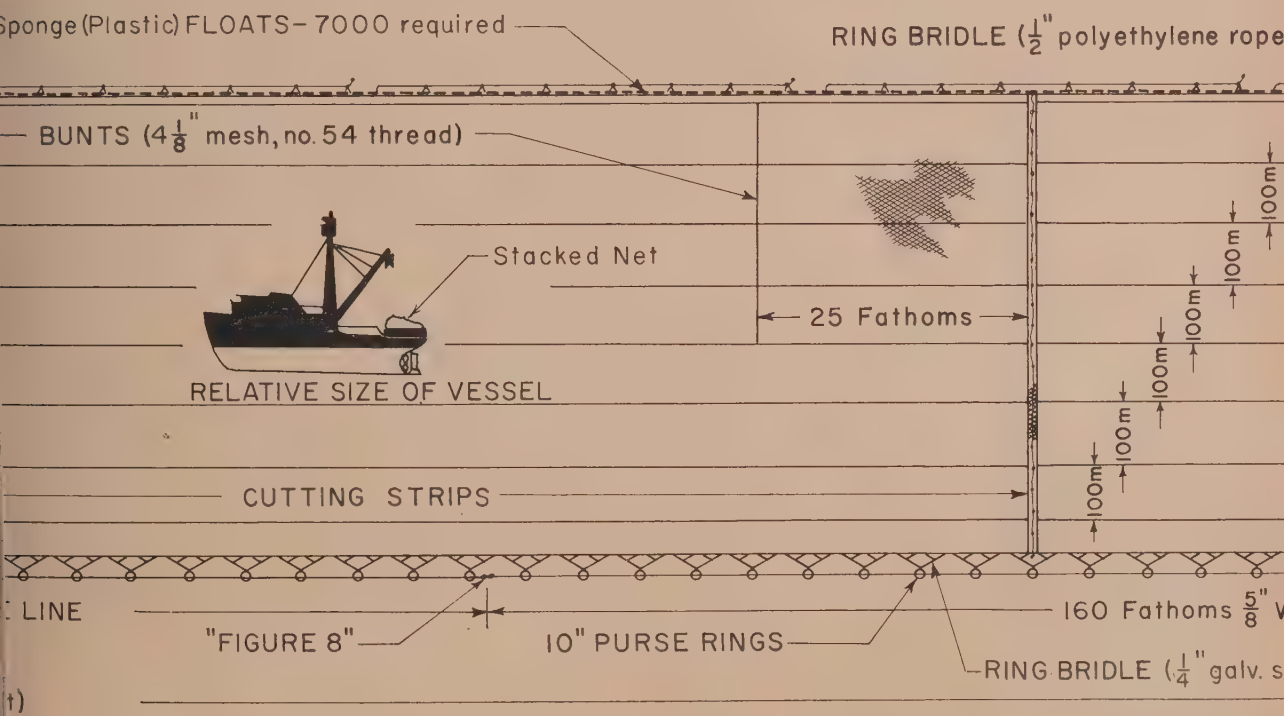


Figure 30—Corkline section showing hangings and purse ring bridle attachment.

How the Seine is Operated

When stacking the net on the turntable[11] a 1½" diameter manila rope with snap ring attached is passed through the power block and hooked to the "triangle" end bracket of the hauling end of the net, which is then pulled through the power block (figure 33). When the end of the net has passed through the power block and has descended within reach of the crew, the hauling rope is disconnected and the "triangle" end-bracket is hung over the stern of the turntable. As the webbing descends, the crew spreads out across the after end of the turntable. One man stacks corks on the port side (figure 34) and another man stacks chain on the starboard side (figure 35). A third man places the

[11] Vessels not equipped with turntables stack the net in normal setting position. Vessels with turntables stack the net in reverse order and then rotate the turntable 180° to setting position.



ON DETAILS (1961)

Figure 31 (right, upper)—Leadline made of 7/16" galvanized steel chain has dropper chain bridles attached at 75-link intervals.

Figure 32 (right, lower)—Leadline selvedge strip hangings.

Figure 33—Starting the end of the net through the power block using a lead rope.

purse rings over the starboard rail of the turntable and threads a ½" manila lead rope through the rings, as they are stacked. This facilitates later threading of the purseline through the rings. Six or seven other crewmen are used to stack webbing.

The net is stacked in three parallel piles running athwartships. One-third of the available stacking area on the turntable is taken up by the first stack (closest to the stern) which attains a height of about 7' before another stack is started. Approximately half of the net is stacked in the first pile. Before moving forward to start the second pile, the main boom with power block attached is raised (which also brings it forward). When the second pile attains a height of about 5' the boom is once again raised bringing the power block further forward, and a third pile is started. The forward-most pile seldom attains a height of more than 2'. This "stair-step" type of stacking forms an incline which aids in bringing the skiff aboard (after rotation of the turntable) and fits the tap skegs on the underneath side of seine skiff (figure 22).

Turntable Operation

To rotate the turntable to se position (180°), a steel cable ½ diameter, is pulled along the starb side, across the stern, and hooked bracket located on the rear port ner of the turntable. The other of the cable is brought forward to winch. When turned to proper tion, the table is secured by inse a steel dowel pin into the deck so

The skiff is lifted aboard the v using a 10-ton capacity double b suspended from the main boom. block is attached to the towing b on the bow of the skiff. A 1" bra nylon hauling rope also is atta to the towing bridle and then t forward to the winch gypsy to the skiff forward. When the ski finally lowered to rest on the webbing, the seiner is ready to se for fish.

Figure 34—Stacking corks during hauling of a tuna purse seine.

Figure 35—Stacking chain and webbing during hauling of a tuna purse seine.

Problem No. 1—Finding the Fish

Figure 36—Mast man, using high-powered binoculars, searches horizon for signs of tuna.

● Locating commercial quantities of fish is a constant problem for skippers leaving for fishing grounds. Prior to departing from port, skippers normally contact other fishermen to determine the general vicinity in which the fleet has been operating and the availability of fish on various grounds. After the vessel leaves port, periodic radio contact is made with the fleet. Although local fishing is preferred, a vessel leaving port in most instances (depending on the time of year) is faced with a run of 6 to 12 days before actual fishing commences. During the run south, crew members search for fish in hopes that s of tuna will be detected, thus r a longer run to distant groun necessary.

Fishing areas frequented b long-distance tuna fleet are v shore-side electronic navigationa Thus, navigators rely on c navigation; and when overcas persist, the navigator relies or reckoning, radar, and echo sou Since fishing is sometimes con on banks or occasionally arour mounts, the echo sounder is c cific value in locating these grounds.

Figure 38—Large binoculars used by crew men to locate tuna.

Fish Detection

● As the vessel approaches fishing grounds, the "mast man" his position in the crow's n search for fish (figure 36). members of the crew search fo of birds, whales, porpoises, f logs, or white splashes made by ing fish (figure 37).

Splashes of feeding tuna c seen by the "mast man" from tance of 4 to 5 miles. Altho greater range of vision is p from the crow's nest, observati birds silhouetted against the sky up better from a lower vantage Some vessels install large bin (figure 38) on the bridge d aid crew men in the search fo Fishermen use a variety of ter cluding "boil," "jumpers," "fire "blackspots," "spot," "breeze," nacca," "shiner," etc., to descri tected schools of tuna. These refer to the behavior of the sch fish or to the appearance of t surface in areas where tuna c

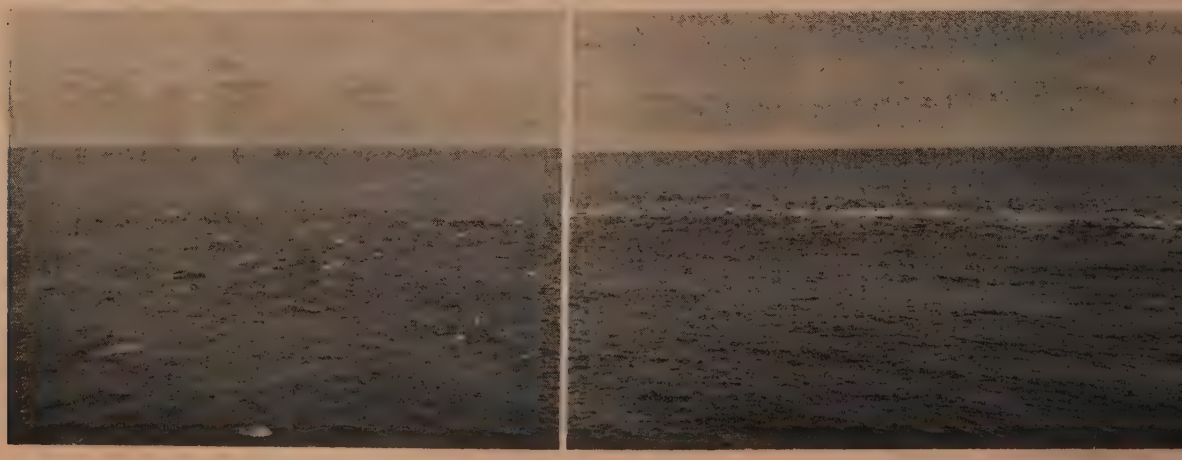


Figure 37—White splashes of feeding tuna.

ure 39—Pelican hook attached to winch holds skiff painter. Hook eleased by removal of safety pin d striking retaining ring with a all hammer.

Figure 40—Threading the purseline through the purse rings prior to setting the net.

Figure 41—Setting the net at full speed.

trate as compared with the surrounding waters.

In tropical waters, schools of Yellowfin tuna are sometimes mixed with porpoise schools. When porpoise are sighted, the vessel circles the area to determine if tuna are present. If no sightings of fish are made after several passes, the vessel continues its search in other areas. When sets are made on mixed schools (porpoises and Yellowfin), considerable care is exercised to avoid capture of porpoises.

Land-based aircraft are sometimes used to scout for fish, but more often they are used to guide the vessel in sets on schools which have been located prior to the arrival of the plane and have subsequently sounded. The fish, still visible from the airplane, are relocated, and the setting of the seine is directed by the pilot.

During the "dark of the moon" night-time fishing is often attempted. Lights visible outboard, except those used for navigation, are turned off. When searching at night, the "mast man" periodically flashes a high-powered, hand-held spotlight over the water's surface. When the light passes over schools of tuna (or other fishes), increased activity of the fish results in a phosphorescent glow appearing in the water. Caution is exercised in setting the net in phosphorescent spots as fish other than tuna may cause phosphorescence.

Figure 42—Encircling the fish, showing the start of the set and in the second photo as the seiner eases up to the skiff, completing the circle.

Figure 43—Completion of set r
ing use of towing line and e
purseline.

Se

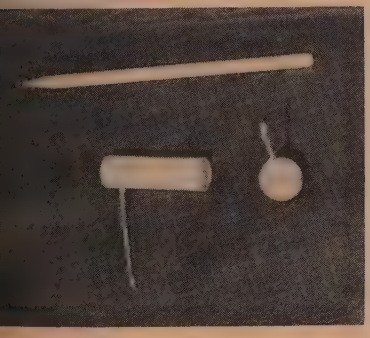
• When fish are sighted, prepar
are made to set the gear. Ho
before the skiff is lowered int
water the steel cable painter sha
to the bow of the skiff, is se
to a pelican hook mounted o
winch (figure 39). As the sk
lowered into the water, the p
becomes taut, keeping the bow
skiff tight against the stern o
vessel. The lifting and hauling
is then removed.

Hook-up of Cables

The end of the seine towing
is pulled from the winch towing
passed through the towing block
connected to the hauling end
angle" bracket. The purseline is
pulled from the winch, passed th
the stern purse block and tied
purse ring threading rope. The
line is pulled through the rings
40) a sufficient distance to allow
nection to an intermediate ha
cable which is coiled inside the
A long link on the end of the
line is then connected to a pur

igure 45—Heaving line stretched ongside the vessel is used to haul the end of the net after it is etached from the skiff.

igure 44—Old style "cherry bomb" nd newer cylindrical - shaped explosives used to keep fish away om open sections of the net.



Tuna Purse Seine

lease on the bunt end "triangle" racket. The next step is to secure e intermediate hauling cable to a eat near the amidships rail on the arboard side of the skiff.

When a set is made, a small hamer is used to open the pelican hook, hich releases the painter, causing the kiff with the net end attached to rop free into the water, thereby reating a great amount of drag which used to pull the first section of net ver the stern. After a small amount f webbing has gone into the water, he strain on the skiff is reduced to he slight tension which is maintained n the purseline by the winch operator.

peed of Setting

The speed at which a net is set is ependent to a great extent on the ehavior pattern of the school of fish. his is usually established before arting a set, as changes in throttle ettings may excite the fish and prevent their capture. The more common etting speeds range between 3/4 throttle and full throttle (figure 41). As the set progresses, the mast man (or aircraft) directs the wheel man to make necessary changes in turning rate to afford most advantageous positioning of the net around the school of fish.

When fish behavior dictates, the encircling maneuver (figure 42) of the vessel is completed by using excess purseline and towing line (figure 43). Many successful sets are made using in excess of 100 fathoms of towing line. Such sets usually require considerable fish guidance maneuvers by the seine-skiff operator and controlled application of "cherry bombs" (figure 44) to keep the fish away from the open section of the net.

Fish Control

● Four methods of fish control are employed to prevent fish from escaping the net before pursing operations are completed.

The *first* (and probably the most effective) method is the use of small "cherry bombs." Although round, red, firecracker-type explosives have been replaced by larger cylindrical-shaped explosives, with enough weight added to make them sink, the name "cherry bomb" is still used throughout the fleet.

The more critical areas where "cherry bombs" are used are:

1. Between the vessel and seine skiff before the encircling operation is completed.

2. Between the end of the net and the stern of the vessel when the encircling operation requires use of towline and excess purseline.

3. Alongside the vessel between the purselines before the pursing operations are completed.

The *second* method of fish control is running the skiff (or auxiliary speed boat) at full speed between the stern end of the vessel and end of the net whenever towline is used.

The *third* method of fish control is hammering on the side of the veseel with a sledge hammer (figure 20) or on the side of the skiff with a smaller hammer.

Fourth fish control method is by

Figure 46—Pursing the bunt end of the seine begins after the intermediate hauling line is disconnected.

means of a flashing underwater light hung from a rubber-insulated cord in the space between the purselines during the pursing operation of night hauls, after the manner of sardine fishermen.

Completion of Encircling Maneuver

● As the vessel nears the skiff, completing the encircling maneuver, the speed of the vessel is reduced and the engine reversed to bring the vessel to a stop near the seine skiff. At this point a 3/4″ heaving line (figure 45), which was previously secured to the forward purse block and stretched forward along the side of the vessel to the bow, is thrown to the skiff, where attachment is made to the coiled end of the intermediate hauling line. The hauling line and net end are released from the skiff, allowing the skiff to proceed to the towing line area to "patrol" back and forth at full speed to scare the fish away from that area. The rope heaving line is then used to pull the intermediate hauling line through the purse block to a winch gypsy which is used to pull in the bunt end of the purseline and the end of the net. When the end of the net reaches the purse block, it is attached to a steel retaining hook welded to the side of the pursing davit.

The purseline is then disconnected from the intermediate hauling line and connected to a short section of cable running under (or over) the winch to the starboard pursing drum. When this connection has been made, the purseline release connecting the purseline to the "triangle" end bracket is released, allowing the purseline to drop free of the net end so that pursing the bunt end can begin (figure 46).

The bow breastline is then disconnected from the "triangle" bracket and taken forward to the bow of the vessel where it is pulled aboard, allowing disconnection of the first cork purseline extension section. The bow breastline and cork purseline are each secured to cleats along the port rail of the bow.

During this time the towing line and purseline are hauled in by the winch. As soon as the circle of the net is closed, the skiff runs over the corks (figure 23) and attaches a towing line to the starboard side of the vessel. The skiff then proceeds to tow at full throttle (figure 24) to the vessel square with the ne from being pulled into the cen the net by the pursing operation attachment point of the tow li the vessel is selected, and freq changed, according to sea, wir net configuration. Considerable in maneuvering the skiff is neec keep the vessel in proper positio

Aboard the seiner, when the ing line brings the stern "tri end bracket up to the purse it is attached to a second ret hook on the after side of the davit. The towing line is then d nected and wound up on the t drum.

The Pursing Process

● The starboard and port p drums continue to bring in the line until all the purse ring brought together and begin to out of the water. At this poin 1½″ hoisting line which was ously placed through the power is hooked to the hauling end tr bracket. The other end of the ing line is placed around a "gypsy" and the end of the hoisted away from the purse When the net has been hoisted 15′ in the air, a 1″ retaining (which had been previously fa to a port side cleat at the ste the vessel) is placed around the bing and drawn tight to remo from the port rail area in orde the purse rings may be brought a in a clear area.

As the purse rings come out water, cable clamps, joined by a bridle, are fastened to the purs and hooked to a double block located on the main boom. Ca then slacked off the purse drums, and the purselines are rer from the purse blocks. The dropper chains, and leadline are hoisted high in the air. When are well above the vessel rail (47), they are lowered slowly t deck. The rings are then sep into four or five successive g and tied with retaining chains are permanently attached to the board rail. This prevents their dragged back into the water b weight of the webbing and cap fish.

Rewinding the Purseline

Three snatch blocks are the ployed to return the purseline

[12]Steel wire slings (placed through rings) are also used.

gure 49—Purse rings are released
om retaining chains two or three
a time during hauling of the net.

d been wound up on the starboard
inch drum, through the rings and
ck to the port winch drum. Two
the blocks are attached to the purse
vit and one is located near the deck
the forward and starboard side of
e turntable base. When this has been
mpleted and the purse rings are free
the purseline, hauling of the net
oceeds. Another method used to
ee the purse rings from the purse-
ne, which results in a savings of
ne, is to open "figure eights" or
lit links, remove the line, and re-
nnect the ends. Twists in the purse-
ne are also removed at this time.

auling the Net

When the purse rings are free, the
uling end of the net is released
om its retaining line and the power
ock is rotated while men on the
rntable pull on the hauling line to
lp start the end of the net through
e block. After the net is started
rough the block (figure 48), purse
ngs are released, two or three at a
ne (figure 49), during hauling and
acking of the net. These released
ngs pass over the power block and
they return to the deck are retrieved
d threaded in order on a line, which
ter facilitates inserting the purseline
rough the rings, as discussed under
e heading of *Stacking the Net on*
e Turntable and also *Setting the*
et.

se of the "Zipper"

If the catch of fish is estimated to
in excess of 40 tons, one or two
ipper" lines may be pulled to separ-
e the fish into different sections
the net (figure 50).

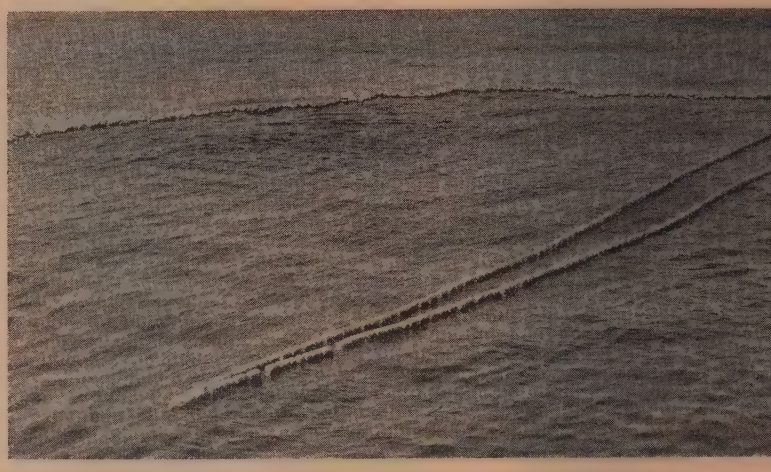
rying up the Net

Hauling and stacking of the net
ntinues until the area occupied by
e fish (in the first cut if a zipper
as pulled) becomes minimal (figure
). At this time, the skiff's towing

gure 47—Leadline and purse rings
e hoisted clear of the water and
en lowered to the deck for re-
oval of purseline.

Figure 48—Hauling the seine using a Puretic "power block."

Figure 50—"Zipper" lines are sometimes pulled to divide the net into or more sections of fish.



line is released from the vessel, allowing the skiff to come alongside and pick up the corkline, forming a pocket between the skiff and the vessel (figure 25) into which the fish are "herded" or "rolled" by further hauling of the net by the power block. A "stand-off" pole (usually flexible eucalyptus) is lowered from the ratlines to a level position, allowing retaining lines to be attached from the end of the pole to the outboard side of the seine skiff (figure 52). The corklines are then secured fore and aft to cleats along the rail of both the vessel and seine skiff.

Further "drying up" of the net is accomplished using winch power to strap aboard approximately 15′ sections of webbing (figure 53). Slings are used to go around the webbing prior to lifting it into the air. Once a lift has been made, a choker rope is placed around the webbing near the rail and the cargo hoisting drum or gypsy on the winch is used to pull the choker line tight, thus preventing the webbing from going back into the water when the strapped and hoisted section is lowered to the deck. Many strapping, hoisting, and choking operations are necessary before the fish are brought to the surface in a compact bag (figure 54).

Brailing

● The small boom, used principally for brailing, is then vanged into the most advantageous position for handling of fish during the brailing operation.

The brail with hoisting sling attached is then lowered to the skiff men who guide the brail vertically down along the side of the skiff. The skiff men signal the winch operator to lower or hoist the brail by using a small police whistle or voice and hand signals. A 2″ diameter aluminum handle 16′ long on the brail allows the skiff men to guide the brail into the fish. When the brail is in position to take a full scoop of fish, the winch man is signaled, and as the brail moves up through the fish, the skiff men guide it to the side of the seiner until it emerges from the water full of fish (figure 55).

A third man in the skiff holds tension on a brail purseline made of small chain until the brail is positioned over an unloading hopper. He then releases tension on the brail purseline, which opens the bottom of the brail bag allowing the fish to spill into the hopper (figure 56). When the brail is empty of fish, the chain man pulls on the brail purseline which closes the bottom of the brail and helps return it to the skiff men. The o tion of brailing is repeated unt the fish are removed from the

Fish deposited in the hopper guided to selected brine tanks series of sheet metal chutes (f 57).

Post-brailing Operations

When all the fish in the bag been removed, webbing which brought on deck by the strappin eration is returned to the water, corkline lashings are removed the vessel and seine skiff. At point, hauling and stacking of th is resumed until all the webbi out of the water.

Before the bow end of the net up through the power block, the cork purseline is retied to the breastline and the bow breastli tied to the "triangle" end bracket 1½″ hauling line is also snapp the end bracket in order to threa line through the power block fo during the next set.

Pursing the Corkline

● When a large catch of fish c a tendency for one or more se of corks to sink in the water (a fish concentrate in a small area becomes necessary to purse the

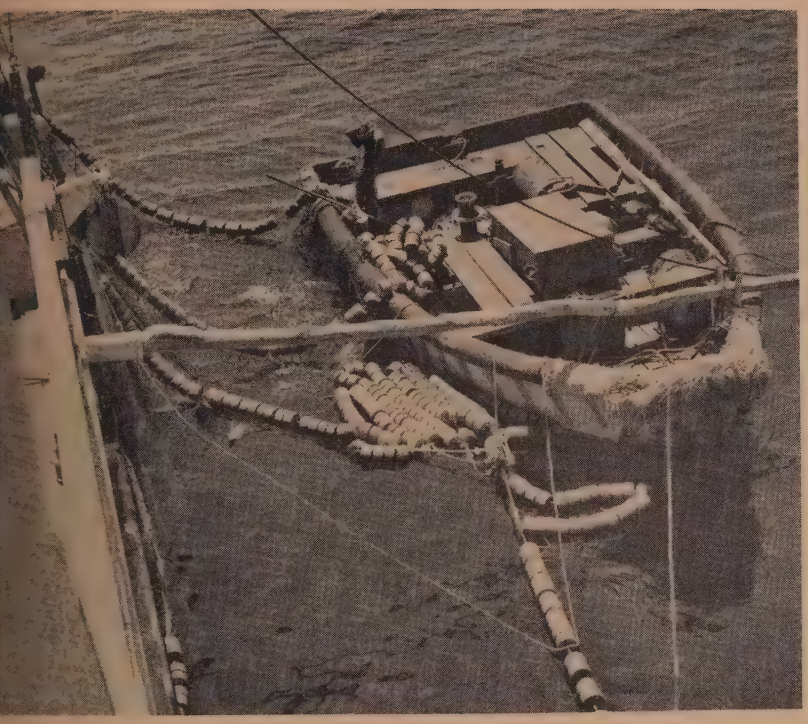


Figure 52—A "stand-off" pole is used to keep vessel and skiff separated during brailing operations.

nto large bunches or groups (figure 8. This is done by successively pull-ng in the sections of cork purselines ver the bow of the vessel through pecial guide blocks. A small corkline urse winch or anchor winch "gypsy" rovides the pulling power necessary o purse the corks. This operation re-uires the assistance of one man in small rowboat to attach heaving ines from the bow winch operator o the end of each section of cork urseline. As sections are pursed, the urselines are made fast to cleats on he bow of the vessel. This operation ontinues until enough corks are ursed to remove the danger of hav-ng the corkline sink.

Transfer of Fish

Whenever more fish have been cap-ured than required to fill the vessel o capacity, another vessel is called y radio to take the remainder of the ish. When the other vessel arrives, ts seine skiff is lowered into the water nd moves in close to the sacked-up ish. Fish are then brailed directly into he other vessel's seine skiff until 5 o 10 tons of fish are aboard (depend-ng on sea conditions). Guidance of he brail during transfer of fish to he other vessel's seine skiff is accomp-ished through the use of a small "gypsy" driven by the seine skiff's engine. Unloading the skiff at the other vessel is accomplished either by hand loading a brail or by use of slings around the tails of fish and hoisting them aboard in groups using a single block and line hauled by a winch "gypsy." The sling method is preferred when the fish exceed 80 pounds each.

Transfers of fish in excess of 30 tons by this method are not uncommon.

● The brine-immersion system of freezing tuna is used almost exclusively by the converted tuna clippers. As a rule of thumb, this method requires refrigeration machinery with a minimum operating capacity (in tons of refrigeration) equal to the vessel's fish carrying capacity (in tons of fish) divided by 5. Thus, a vessel equipped with cargo wells capable of holding 200 tons of tuna could be expected to have refrigeration machinery with rated capacity expressed as 40 tons of refrigeration effect.

Procedures vary slightly among vessels, and the following descriptive matter should be considered average treatment. More exact data are available (Hendrickson, H.M., et al, 1959).

Prior to receiving fish, the coil-lined brine wells are filled with sea water, which is then chilled to about 30°F. As fish are added to the well, excess chilled sea water is pumped into an empty well and retained for later use. When the well has been filled with fish, topping grates are secured to the inside of hatches and enough chilled sea water is returned to fill the well. Maximum refrigeration is then applied to the well coils and circulating pumps are turned on to keep the water moving through the fish. A rise in temperature of the

Figure 51—Wild thrashing of fish occurs as net size is reduced near the end of hauling and stacking operation.

Figure 54—"Dried-up" bag contains approximately 45 tons of tuna.

Figure 55—Hoisting aboard a brail full of tuna.

ure 56 — Spilling the catch into e hopper.

illed sea water to about 50°F. oc-rs, but within a few hours begins fall slowly as heat is extracted from e well. After about 12 hours, the nperature drops to approximately °F., and at the end of 24 hours ll be about 30°F.

Further cooling is then accomp-hed by adding several 100-pound gs (depending on the size of the ell) of fine-grain rock salt and in-easing refrigeration rates through anipulation of thermostatically-con-olled expansion valves. When the nperature reaches approximately °F., the fish are held at this tem-rature for a few days and then the ine is removed from the well, leav-g the frozen fish in dry storage. ontinued refrigeration is maintained the well, causing a further drop in nperature. Dry storage tempera-res between 10°F. and 20°F. are en maintained until the end of the p.

One or two days prior to unloading the cannery, thawing is begun by rculating brine through the frozen h. When sufficient thawing has been complished to separate the fish, they e unloaded and canning processes oceed.

California's Switch to Seiners May Change World Fishing Methods

● Conversion of a large segment of the California tuna fleet from clippers to seiners was stimulated by the successes of the early conversions and the need to reduce costs of raw fish, in order to stay competitive with foreign producers of tuna and domestic producers of other protein foods. News of attempts to adjust to this competition through conversion of the California clipper fleet to seiners was followed closely by the fishing industry throughout the world. The rapid change to seining and subsequent success of the fleet in distant waters is having a considerable impact on design of new tuna vessels and methods of harvesting tuna. It may also initiate a trend toward greater

Figure 57—Fish are guided to selected brine tanks by sheet metal chutes attached to the hopper.

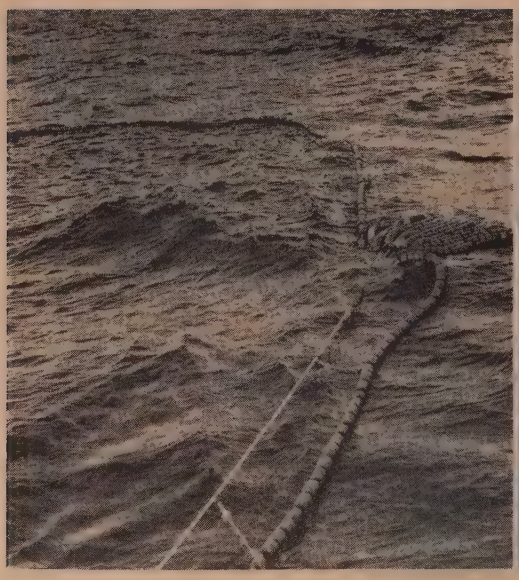


Figure 58 (left)—Pursing the corkline is sometimes required to keep it from sinking due to the weight of fish. **Figure 53** (right)—Strapping aboard a section of bunt webbing to "dry up" the bag of fish. Gilling of fish in this section of the net is a common occurrence.

use of large seines in other ocean fisheries.

The success of the tropical tuna seining venture stems largely from (1) the adoption by the fishing fleet of synthetic twines (all-nylon seine), (2) the advent of the Puretic "power block" which increased the hauling speed of the nets, (3) use of aircraft, and (4) possibly favorable oceanographic conditions influencing availability of fish.

The methods and gear described here document only the beginning phase of a new era in the California tuna fishery. Improvements and changes in methods and gear can be expected to occur rapidly as fishermen adjust to problems peculiar to tropical seining of tuna.

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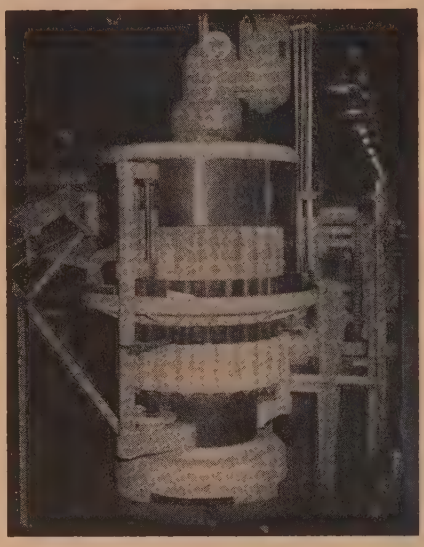

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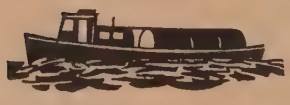

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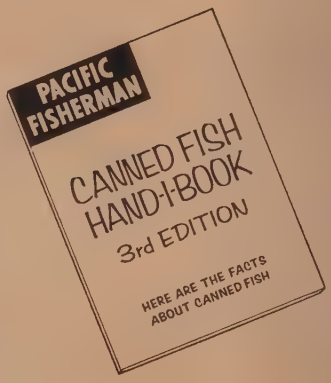

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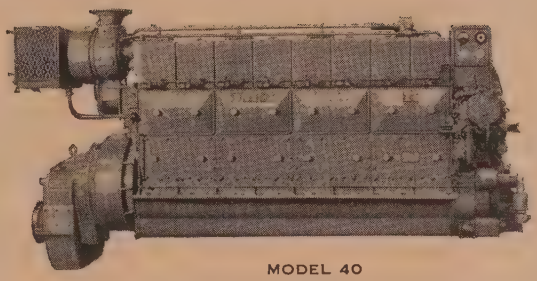

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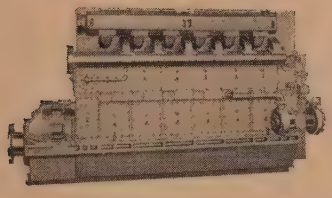

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65-6	6	500-600	580-720	410-510	1105-1600	780-1130
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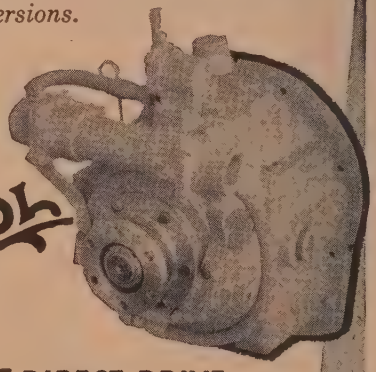

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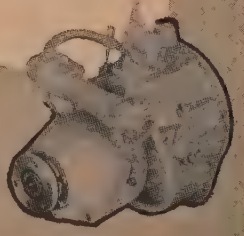

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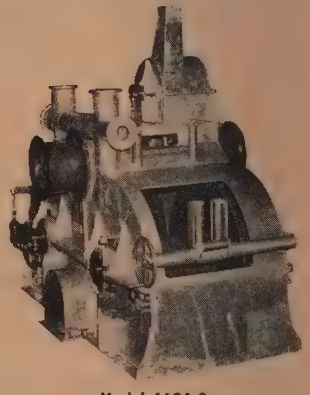

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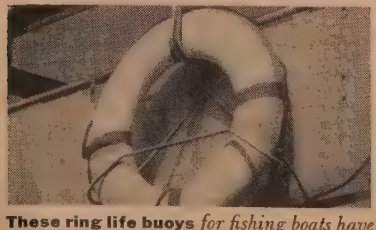

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These B.F.Goodrich floats have earned enthusiastic approval by fishermen everywhere because of their toughness, light weight, permanent buoyancy. Practically indestructible, they won't break, crumble, need no maintenance. And they never waterlog to add extra weight to nets. B.F.Goodrich floats come in 17 sizes, ranging from 3″ x 1½″ to 6″ x 14″. For full information, write *The B.F.Goodrich Company, 145 Derby Place, Shelton, Connecticut.*

Made under Pat. No. 2,737,508

MARINE PRODUCTS BY B.F.Goodrich

Anderson to Copenhage As Fisheries Attachee

Andrew W. Anderson, who been assistant director of the U Bureau of Commercial Fisheries a number of years, this month is tering a new field of service as U Fisheries Attachee for Western rope, stationed in the American bassy in Copenhagen.

Before leaving the Departm of the Interior, Mr. Anderson granted its Distinguished Ser Award, the department's hig honor.

In the month before his depar for his European assignment, Mr. derson was able to visit the Pac Coast, conferring with fisheries pe in California, Oregon and Washin to acquaint them with the duties will have, and the means by which office may be of service to indus

Mr. Anderson is the third such f ery attachee. Others are: Milton L ner, stationed in Mexico and assig the Latin American area; Arnie Suomela, stationed in Tokyo, with Far East as his field.

R. H. Fiedler Passes

Reginald H. Fiedler, one of earlier graduates of the University Washington College of Fisheries went on to influence fisheries deve ment all over the world, died Florida in May at the age of 63. had retired in 1960 after a num of years of service with the Fishe Division of the U. N. Food and A culture Organization in Rome.

Mr. Fiedler served the old Bur of Fisheries and Fish and Wild Service in many capacities; and was fisheries chief of the NRA early New Deal days.

After military service at the h of the SCAP fisheries agencies in pan, he entered private business f time. Later he served foreign agencies for several years before j ing FAO.

"Tolstoi" Is Now "Heron Of Alaska Packers Fleet

Harold Daubenspeck, proprieto Kenai Packers, Inc., Cook Inlet mon canners, this spring disposed his large, steel refrigerated fish rier *Tolstoi* to Alaska Packers A ciation, by which it has been renar *Heron* to take its place in the fam "Bird Fleet" which has carried Packers' house flag to Bristol since the beginning of salmon ning there.

'TRILOCK
is all I expected — and more"

says NICK MOSICH Jr., skipper of the newly-converted tuna purse-seiner Mauritania.

never had a net work more smoothly than my new ock seine", says Capt. Mosich. "We had no fish tangling oblems whatever, even with the smaller fish.

our-fifths of my net is Trilock, with about 100 fathoms conventional webbing. The Trilock works so much ter and faster that I wish I had specified all Trilock. was really better than I expected".

LOCK (registered trade name) is a new type all-nylon n net, designed and proved to be stronger and oother. TRILOCK reduces friction, works faster and sier in the equipment. Its special construction sub-ntially reduces porpoise and shark problems.

EWART'S SUPPLIES furnished the Mauritania's net with ongex and Yellow Buoy floats, Whitlock (div. of Ply-outh Cordage) rope, Wickwire Exgal wire rope, McKay ain, Trilock and Gold Eagle webbing, Brownell lacing ine, U.S. Net & Twine Co. dip.

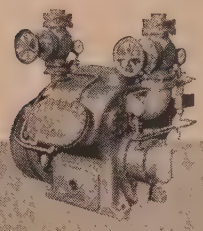
Young, progressive Nick Mosich (left) teams with old-hand Jack Borcich (right) on the 350-ton Mauritania, owned by Nick Mosich Sr. and Jr., John and Steve Vilicich and Manuel Cardoza. Her net was hung in our complete yard, with power-block and fork-lift trucks.

all your net needs, phone or write

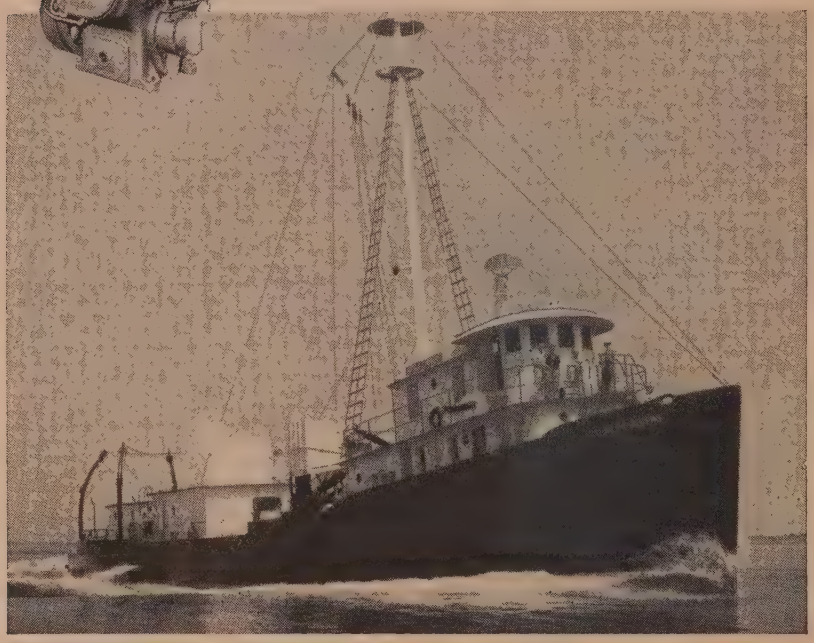
STEWART'S SUPPLIES

Box 1185, San Pedro, Calif. **Phones TErminal 3-2603, HEmlock 7-0611**

Can you imagine 1,000,000 menhaden in your hold without refrigeration?



A view of a typical Vilter VMC ammonia compressor of the type used in the A. J. Minners. Vilter VMC compressors supply maximum capacity in a minimum of space.



The A. J. Minners owned and operated by Larry Clarke of Smith Research and Development Company was built by J. F. Bellinger & Sons Boat Yard of Jacksonville, Florida. The A. J. Minners fishes for menhaden and its refrigerated holds have a capacity of 1,000,000 fish.

Top profits require prime fish at point of delivery for proper processing. And that's why Vilter was selected to provide the refrigeration for the menhaden vessel, *A. J. Minners,* with a capacity of 1,000,000 fish in her holds.

The Vilter refrigeration system for *A. J. Minners* includes a vertical single pass water chiller divided into four sections. Four water pumps take water from the four holds, pass it through the respective section in the chiller and then spray it back into its own hold. The four section chiller and four separate pumps were selected to control the balance of the ship. The compressor is an 8-cylinder VMC ammonia unit direct connected to a 6-cylinder diesel. A Vilter condenser, receiver and float complete the installation.

To prove the Vilter design and refrigeration equipment, a Vilter representative accompanied the *A. J. Minners* on an early cruise. The refrigeration equipment quickly brought the water down from 60° F. to 37° F. and the total catch of 400,000 fish was held at this temperature. Fish arrived at port cold and firm and less than 2% were broken.

For reliable, test-proven refrigeration to meet your requirements, call or write Vilter direct or see your nearest Vilter distributor.

Vilter® refrigeration air conditioning

The Vilter Manufacturing Corporation

Milwaukee 7, Wisconsin

Air Units • Ammonia and Freon Compressors • Booster Compressors Baudelot Coolers • Water and Brine Coolers • Blast Freezers Evaporative and Shell and Tube Condensers • Pipe Coils Valves and Fittings • Pakice and Polarflake Ice machines.

Write for helpful bulletins to

The Vilter Manufacturing Corp., Dept. PF-612 2217 South First Street Milwaukee 7, Wisconsin

Pollock and Association Open New Offices

Charles R. Pollock, who serv secretary of fisheries associations side operating a Seattle insu business, in May opened new o at 66 Marion Street, Seattle 4 telephone number continues as 3-0102.

This location is just across Al Way from that which he had occ for many years in the Ferry Doc which the portion in which Mr. lock was situated was destroye fire this spring.

The new location at 66 M Street is headquarters for the N west Fisheries Association, the P Coast Oyster Growers Associ and the Halibut Association of America.

"Tommy" Rice to Assis Pautzke in Washington

Thomas D. "Tommy" Rice, has been executive secretary o Massachusetts Fisheries Assoc since 1945, in May became ass to Commissioner of the U.S. Fis Wildlife Service Clarence Pautzk

Mr. Rice engaged in the New land fish business for years an served organizations of the ind on the Atlantic Coast in a numb specialized fields.

He was one of the several candidates for the office of co sioner prior to Mr. Pautzke's ap ment.

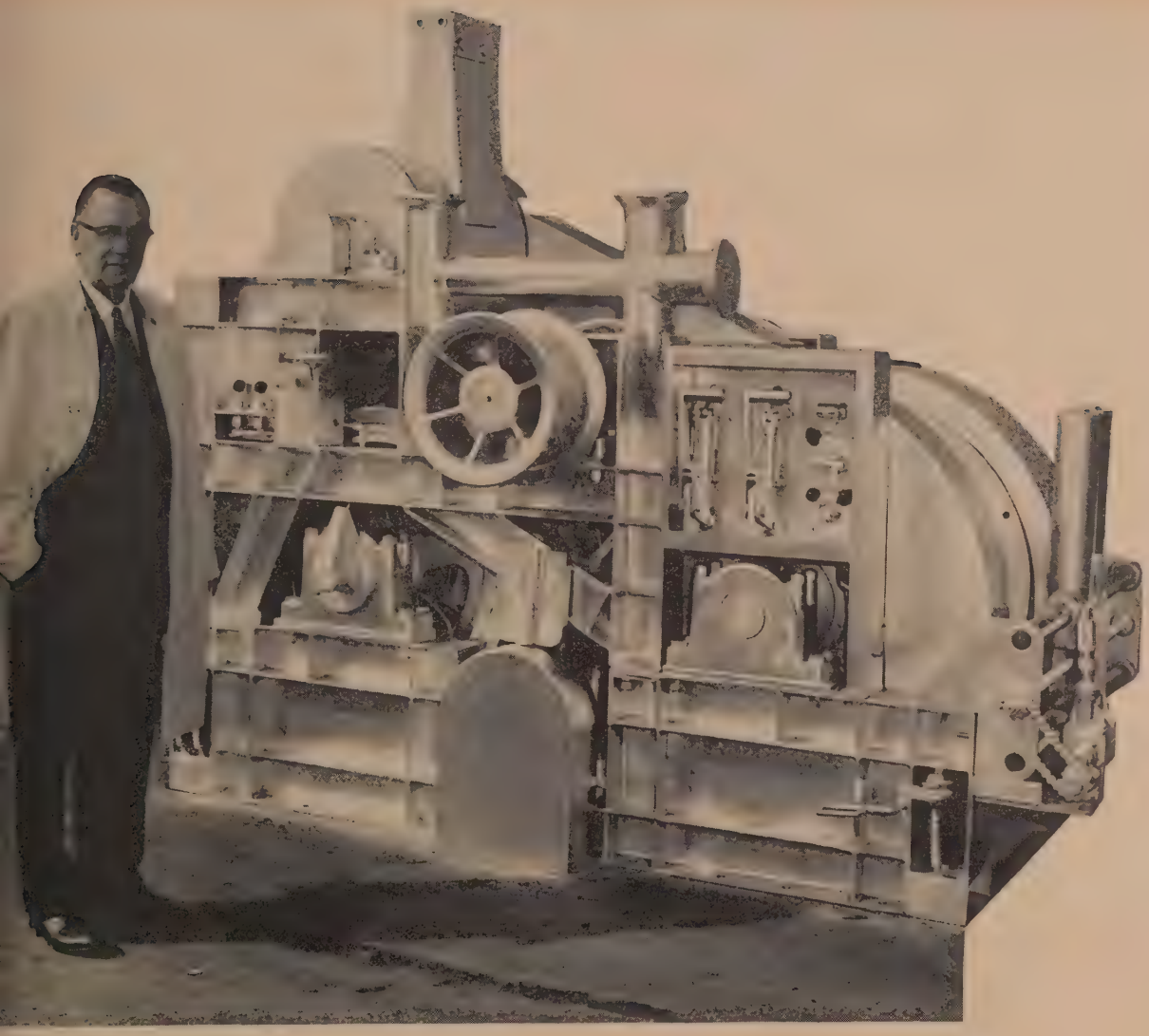
Al O'Leary Superintend At Port San Juan

In its May issue *Pacific Fishe* erred in reporting on the dea the late Bertram B. O'Brien, i as his successor at Port San Juan nery of the San Juan Fishing & ing Co. is concerned.

Al O'Leary became superinte of the cannery in 1960, followin O'Brien's retirement; and continu that position.

Daly Wins Position on Astoria School Board

Jack O. Daly, advertising ma of the Columbia River Packers ciation, Inc., in May was elec member of the Astoria, Ore., s board for a five-year term.



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COMA BOATBUILDING CO., INC.

"For many years most owners in the tuna seiner fleet have placed the responsibility for their winches upon us. Our knowledge of boats, fishing methods and machinery has enabled us to meet that responsibility with excellent success.

"The current trend to larger and larger seiners with ever increasing size of nets has been met by our new Northern Line Model 450 Seine Winches. These winches are arranged for mechanical, electric or hydraulic drive. We have taken advantage of all we have learned in the past so that these new Model 450s offer the best available to even the largest seiners. They have the greatest drum capacities, the most strength and durability as well as the longest trouble free life that can be found.

"We have spared no expense in research, development and testing. The results are all we could hope for.

"When the Northern Line Model 450 is your fishing winch there will be no short trips due to winch trouble."

Write or call for complete information and delivery schedules.

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FOR FISH WELLS

Dollars to Donuts

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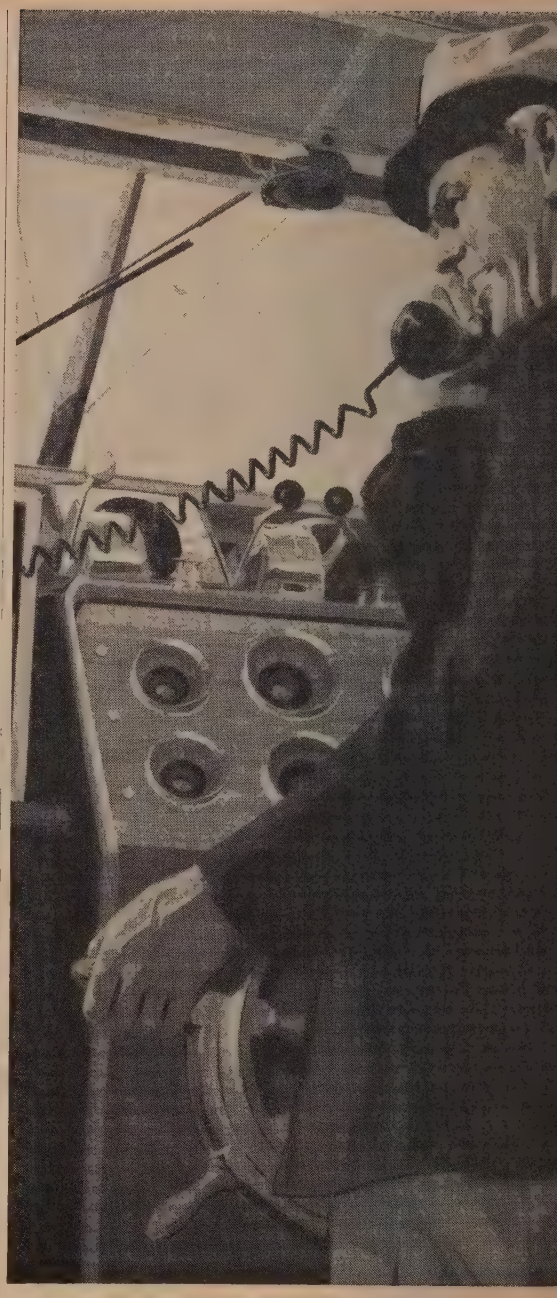
Ask These Distributors for the "West Point Story"
Nuttall-Styris Co., 825 Columbia, San Diego
Industrial Paint Co., 1342 N. Avalon, Wilmington



Do you miss calls?

Unless your boat's radiotelephone is equipped fo
enough channels, you may find the channel bus
when you try to call. Or if you sail to other Pacifi
Coast ports, you may miss calls on their channels
For smooth sailing wherever you go, be sure you
set is properly equipped. To get the full story—plu
a directory and fact-filled booklet—just call ou
nearest business office and ask for the ship tele
phone representative.

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PART OF THE NATION-WIDE BELL SYSTEM

Ace" Sets Record with 630 Tons;

961 Tuna Landings Increase 25%

Biggest single cargo of tuna ever
led in San Pedro by a fishing ves-
was delivered May 22 when *West-*
Ace, commanded by Earl Peter-
brought in a fare estimated at
tons. This was the *Ace's* maiden
rt as a seiner converted-from-
per.
Western Ace is one of the two big-
seiners in the fleet, having been
verted to net fishing earlier this
. According to net boss Pete And-
, everything on the boat worked
factorily. The *Ace* is a kingpost-
ed vessel, and her sturdy off-center
er. block boom gave no trouble
tever, Andrich said. This was of
rest to tuna fishermen, since at
t two other seiners, originally con-
ed to kingpost style later remodi-
their gear to place the power block
dships as is the more conventional

ce caught most of her fish off
er Central America, but had to go
farther, off Colombia, to com-
e her load, which included a quan-
of Skipjack, estimated at around
tons or so.

Fishing Picks Up

After a dip in April, tuna fishing
again going great in the southern
udes, and the far-ranging converted
ers were again bringing in heavy
ls in comparatively quick trips.
stitution, with Manuel Neves in
mand, made a 21-day trip, the
test in recent weeks. The new up-
e in fishing brough the total of
fornia tuna receipts for the year
May 13 to 58,111 tons, excluding
sshipments, compared with 46,330
year and 44,595 year before last,
ording to the U. S. Bureau of Com-
cial Fisheries.

The catch was still overwhelmingly
owfin (54,783 tons to 2,313) and
possibility that the Yellowfin re-
ce is being overfished is still pres-
according to scientists of the Inter-
erican Tropical Tuna Commission.
hough nothing official was said on
subject, it now appears certain that
ecial meeting of the commission
be called some time late in sum-
or early in the fall, to consider
servation measures on Yellowfin
uch a course of action is indicated
by the statistics as they stand at that time.

There is no sign of overfishing of Skipjack.

Albacore Going South?

● This year for the first time the Bureau of Commercial Fisheries made an official Albacore forecast. Using data studied by its comparatively new Point Loma laboratory staff, the Bureau came up with a guarded prediction that the fishery will begin farther south this year than for the past three years, and that the catch south of the Mexican border would be in the vicinity of 10,000,000 lbs., as compared with an average 1945-49 catch of 15,900,000 lbs.

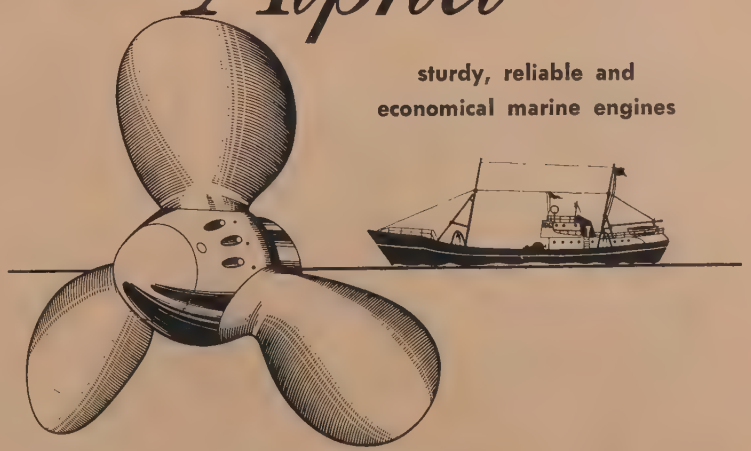
The California Department of Fish and Game, in its annual Albacore letter written by Marine Biologist William L. Craig, came to the same conclusion about the Albacore moving farther south this year than in recent previous seasons. Mr. Craig pointed out that the sea surface temperatures on the Albacore fishing grounds are a degree or two cooler this year than last, but a good deal of the area is warmer than the long-term average.

Since no Albacore had been caught nor offered for sale, no prices have been posted by any of the Terminal Island canners, and naturally at time of writing no canner would say right out what his opening price will be. However, it is generally assumed that the ex-vessel price will be higher than the $275 per ton which was the going rate when the season ended last year.

TRAWLERS • TUGS • COASTERS ...
FOR FISHING BOATS •

B&W Alpha

sturdy, reliable and
economical marine engines



B&W ALPHA two-stroke valveless Diesels
from 100 to 1,000 b.h.p. at 450-310 r.p.m.

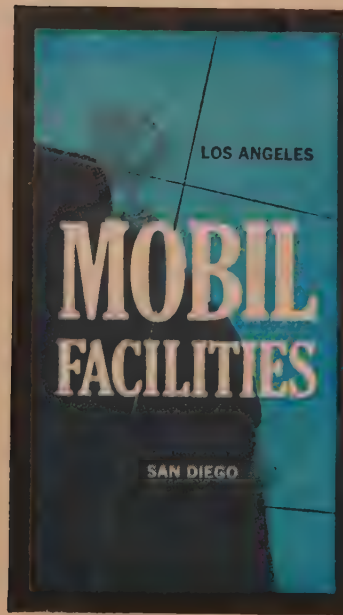
Reversing gear or controllable pitch propeller
or direct reversible.

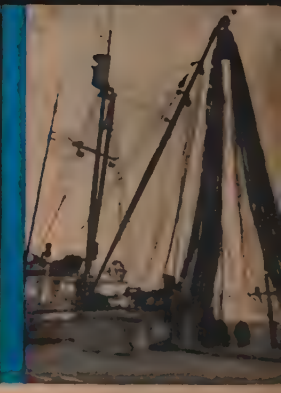
Manual or hydraulic controls.

BURMEISTER & WAIN AMERICAN CORPORATION

Main office and plant: Mystic, Connecticut. New York office: 17 Battery Place, New York 4, N.Y.

TUNA BOATS equipped with gear for new seining methods are refueled at the Pegasus Marine Co. dock at San Diego. Note how net is stowed on revolving turntable at the stern where the boom has dropped it neatly in place ready for further use.





PEGASUS MARINE CO., SAN DIEGO, the Mobil Marine Distributor, provides 24-hour-a-day fuel delivery service for the tuna fleet. Offering five fueling stations, plus two portable hose wagons, Pegasus can pump 30,000 gallons per hour. All diesel fuel is double filtered to eliminate water due to condensation. All Mobil Marine Lubricants are available in bulk and drums.

Large dock area is provided f ing seine net repairs. Illu above shows net being run t Puretic Power block. (Nam its inventor, Mario Puretic, San Diego tuna fisherman.)

IERE'S HOW WEST COAST TUNA FLEET TAYS AHEAD OF FOREIGN COMPETITION!

ew purse seining techniques cut turn-around time over 60%

e San Diego tuna fleet is helping to meet foreign competition with revolutionary fishing hniques. Now practically abandoned is the use of cotton nets or the old bait and pole thod. Instead, the catch is winched up to the boat by drawing the greater part of a new-e nylon net through a special power block on the boom.

th this new system it's possible to pull in a whole net load of tuna up to 4 times faster. rn-around time has been cut from an average of 70-90 days under old method to 20-35 rs with new system.

fishing operation, nylon nets up to 3000-ft. long are suspended from floats down to about fathoms. The bottom of the net is weighted with a chain "leadline." The boom holds the high, then drops it neatly in place for the catch.

ien tuna are sighted one end of the net is held by a skiff while the clipper circles the ool. As the circle is completed the purse line is pulled tight, closing the bottom edge of net and trapping the tuna.

addition to building bigger boats equipped to operate with these new techniques, modern a fleets on the West coast are also making use of small planes to spot tuna from the air.

o helping are Mobil Marine Distributors, like those shown below, who stand ready to pro-e fast efficient service and a complete line of the finest fuel and lubrication products.

MOBIL OIL COMPANY, 150 East 42nd Street, New York 17, N.Y. • 465 California Street, San Francisco, Calif.

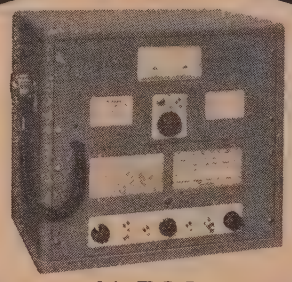
AL FISHERMAN'S SERVICE, INC. AT TERMINAL ISLAND in eles harbor serves the local fishing fleet and the San Diego tuna at put in to unload their catch at the canneries. Service is pro-ound the clock at General Fisherman's 170-foot dock with its 7 ping stations. Mobil Engineering assistance is available when re-nd all Mobil Marine Lubricants are available in bulk or drums.

Mobil

Mobil products for fishing fleets

In 400 ports throughout the world, Mobil Marine Distributors, backed by the engineering experience of the Mobil Oil Co., stand ready to serve you. They offer a complete line of famous Mobil Marine Products including lubricants, fuels and gasoline.

Northern
RADIO EQUIPMENT



N-529

11 Fixed channels, range to 22,000 KC, designed for rugged commercial use. Other Northern equipment to suit every exacting need. Inquiries invited.

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MARINE RADIO SERVICE
Berth 73, San Pedro, Cal.
Phone: Terminal 1-1213

BENRAD, INC.
261 E. 22nd St., San Pedro, Cal.
Phone: Terminal 3-7747

What Will $700 Million Marine Science Bill Do For Fisheries of U. S

● Benefit to fisheries under the Magnuson Marine Sciences Bill, now before Congress as a stride toward meeting President Kennedy's proclaimed goal for sea science and fisheries conservation, was clarified May 23 as its author, Senator Warren G. Magnuson, asked—and received—approval of the Senate Commerce Committee.

There is no gainsaying the fact that fisheries scientists, administrators, operators, and just plain fishermen have been wondering a little whether the bill would offer anything for fisheries research and the resources it seeks to safeguard.

Senator Magnuson made this point: "Disregarding security aspects, the national oceanographic program should reward us many times over in economic benefits to fisheries and minerals production, to comm health and improved long-ra weather forecasting".

The bill contemplates an expe ture of $700 million over a pe of 10 years. Among the prin items of outlay would be 61 ves of which 14 would be designed cifically for fisheries research. C principal segments of the fleet nu ically would be: 23 vessels for research by institutions and lab tories; 6 vessels for applied and ac tics research by scientific laborato 18 for oceanographic surveys u the Navy and the Hydrographic fice.

Specific provision is made fo search grants or contracts to be m by the Bureau of Commercial F eries, as well as the Office of N Research, National Science Fou tion, U.S. Public Health Service the Atomic Energy Commission.

All projects would be coordin reviewed and evaluated by a Ma Science Division to be establishe the National Science Foundation.

Calif. Sardine Season May Run to Mar. 1

The California legislature passed, by solid majorities in houses, a bill to extend the sar season for the next two years to M 1, two months longer than at pre

The bill was introduced by semblyman Vincent Thomas, of Pedro, who has a sympathetic un standing of the commercial fishern problems. Despite the strong vot favor of the measure, it was opp by members of the Fish and G Commission.

The bill was designed to give mercial fishermen a chance to g share of the sardines which are to run abundantly in the late w and early spring. Sardine studies yielded no positive evidence that resource has ever been overfished though the sardine populations declined in the past 10 years. The c of the decline is said by scientis be definitely not overfishing.

Above, left: Capt. L. M. Anderson, a captain for over 31 years, and his new air-cooled Lister diesel. Above, right: The new 'Tiki'.

"I know I can expect years of trouble-free service"

AN AIR-COOLED DIESEL— by Lister

A 7 HP air-cooled Lister Diesel occupies a prominent place on the fore deck of the new snapper vessel "Tiki," owned by Capt. L. M. Anderson of Panama City, Florida. The engine is used as an anchor hoist and for general cargo lifting.
"I bought the very best for 'Tiki'," says Capt. Anderson, "which is one of my reasons for selecting Lister to power my deck hoist. I know from Lister's reputation that I can expect years of trouble-free service, and in addition, solved the problem of not having to rig a power take-off from the main engine. My Lister has already proved its lasting value."
Because of the exceptional advantages of their air-cooling, *versatile* Lister Diesels (3½ to 72 HP) have created an entirely new concept of auxiliary power generation. And these economical engines, sure-starting even in sub-zero temperatures, are ideal also for the propulsion of small and medium sized boats.

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42-32 21st Street, Long Island City 1, N. Y. Tel.: STillwell 6-8202
West Coast Office: 9830 West Pico Blvd., Los Angeles, Calif.

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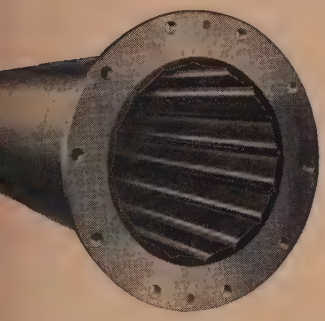
SEATTLE—MARINE EQUIPMENT CO., 5448 Shilshole Ave.
PORTLAND—ANDREWS & ANDREWS, Ft. of S. W. Gibb St.
SAN FRANCISCO—OSWALD MARINE & EQUIPMENT, INC., 2936 Hyde St.

For Top Performance and Economy

Wise Pacific Coast Fishermen Choose

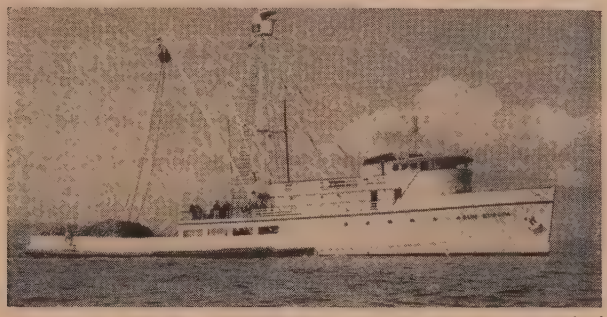
CUTLESS SOFT RUBBER WATER LUBRICATED BEARINGS



LESS BEARINGS IMPROVE PERFORMANCE OF ANY VESSEL!

ou fish for a living you know the importance of ndable propeller shaft bearings. The kind that gives s of trouble-free, QUIET operation. The kind that s shafts and keeps boat out of drydock. That kind is TLESS—the soft rubber, water lubricated bearing e bearing fishermen depend on to keep them fishing.

them from your favorite Marine Supply House or Repair Yard when you haul out. Large west coast ks, popular sizes. Factory stock to 11¾-inch shaft available overnight by air.



Conversion of 150' clipper SUN EUROPA into giant new tuna seiner involved complete hull rebuild at Fellows & Stewart, and use of Goodrich Cutless stern tube bearings.

LUCIAN Q. MOFFITT, INC.

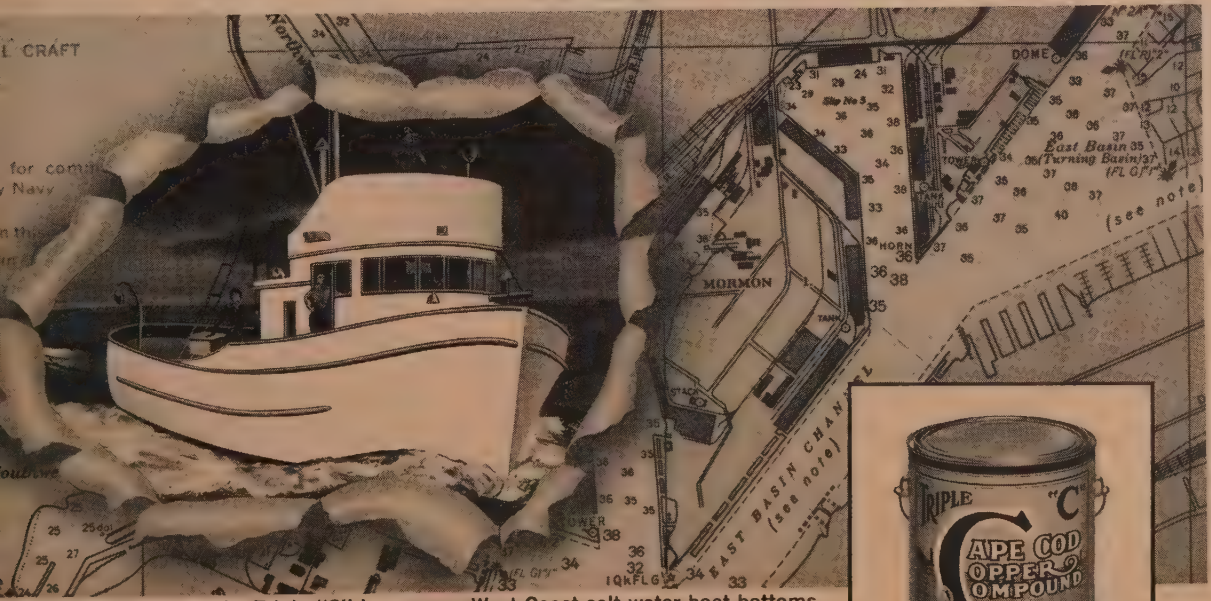
AKRON 8, OHIO

Engineers and National Distributors

B.F.Goodrich *Cutless* BEARINGS

PROPELLER SHAFT

TRIPLE "C"...*best by any chart!*



here's a good reason why Triple "C" is on more West Coast salt water boat bottoms han any other paint. It's because fishermen and other work boat operators know riple "C"— Cape Cod Copper Compound — provides extra months of trouble-free peration for every dollar invested. Your dealer will tell you that it's the world's finest nti-fouling paint: ask him for Triple "C" today.

AMERICAN MARINE PAINT COMPANY

Home Office: 311 California Street, San Francisco

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Why take a chance?

SPECIFY
BROWNELL NYLON SEINE TWINE
when ordering your netting

ANTHONY M Breaks All Records
Catching over 8,000 Tons of Tuna...
4 Times as much as Nets Formerly Used

"Three years old — still going strong," so reports CAPT. ANTON MISETICH, outstanding leader in developing new gear for the commercial fishing industry. His all-nylon tuna seine is reportedly the largest commercial fish netting ever made.

In selecting the nylon seine twine from which to manufacture *Anthony M's* netting, A. M. Starr Net Co. turned to Brownell — foremost producers of top quality nylon twines made especially from high tenacity, 100% DuPont Nylon. Brownell's rigid factory specifications on all nylons insures the netting manufacturer and fishermen maximum strength, yardage, durability and consistent uniformity of twist. The tuna seine made for *Anthony M* is of the very finest nylon seine twine — rugged yet lightweight for day in, day out use.

You'll find the Brownie Trademark on the largest selection of nylons for the fishing industry. Here are just a few:

Regular Nylon Seine Twine
Lobster Pot Nylon Heading Twine
Stretched and Bonded Nylon Maitre Cord
Polyethylene Maitre Cord
Poly-spun Maitre Cord
Spun and Combination Nylon Seine Twine
Brownie Type "E" Nylon
(the only successful trawl or long line available today)
PLUS
A Complete Selection of Nylon Hanging or Seaming Twines

For additional information and the name of your nearest distributor, write to:

FOUNDED IN 1844

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TRADE MARK

When ordering nylon netting for commercial fishing, make sure *your* manufacturer is using the best in nylon seine twine and maitre cord — it bears the "Brownie" Trademark!

SERVING
THE COMMERCIAL FISHING INDUSTRY
FOR OVER 100 YEARS

BROWNELL & CO., INC.
MOODUS, CONNECTICUT, U.S.A.

ea Alive With Silvers
n May, Trollers Report

rollers reported Silvers abundant long the coast from the latitude Vancouver Island south to Cali-ia during the month of May.

hey couldn't be marketed until e 15, and the trollers avoided tak- them where possible, but there no doubt about their abundance nd that it was very much greater usual.

No two ways about it, the May prospect for Silver fishing was excellent.

King salmon trolling in the Washington--B.C. sector was producing better than 1960—which of course was the worst ever. "It could be a lot better than last year and still be poor", one man dourly observed.

Going into the fourth week in May, FCA deliveries at Westport were twice those of even date in 1960; and Neah Bay receipts were also head, although the season was early for good business at that point.

● Overall landings were not heavy, and this was reflected in advanced prices. While individual boats were doing rather well, the number of trollers fishing out of Puget Sound and the Oregon-Washington coastal area was not great.

Disappointed last year, many boats went north and south for the early part of the season, determined to try Alaska and California.

The boats which went down to open the commercial season in California were disappointed at first, as the weather was foul and the fish small in size and rather few in number.

At the start of the fourth week in May there was a bulge of better fish at San Francisco.

● Prices on splitters were up sharply over early 1960. Large red Kings were commanding close to 75¢ dressed head on toward the end of May and medium red Kings were 55¢ or better. At the same period in Southeast Alaska splitters were 50¢ at all ports and medium red Kings 32¢.

Paul Warner, Troller Leader, Passes Away

Paul R. S. Warner, who was a charter member of the Fishermen's Cooperative Association, Seattle, and one of the early Pacific Northwest Albacore fishermen, died in Seattle late in April at the age of 72.

He had been an active troller since 1930.

Knoblock's Body Found

Body of Harry Ellis Knoblock, 46, was recovered near Winchester Bay, Oregon, early in April. A former Columbia River trawl fisherman, he had lost his life in the foundering of the *Westwind* off the Siuslaw River a month before.

Lost with the *Westwind* at the same time were Charles Matteuci and Charles Matteuci Jr., the latter owner of the craft.

★ SELLING & BUYING ★

¢ a word per time, $4.00 minimum. (For box numbers addressed PFN, add $1.50.) Business card display—$29.00 per column in. per sertion, with lower rates on contract basis. Mail all copy to PACIFIC SHERMAN'S NEWS, 500 Howard St., San Francisco 5, California.

ERESTING OPPORTUNITY for tuna plant nager. There is an opening for a person perienced in all phases of tuna processing take complete charge of an East Coast tuna nt. Salary open for discussion. All replies ctly confidential. Write Box 100, Pacific herman, 500 Howard St., San Francisco 5, if.

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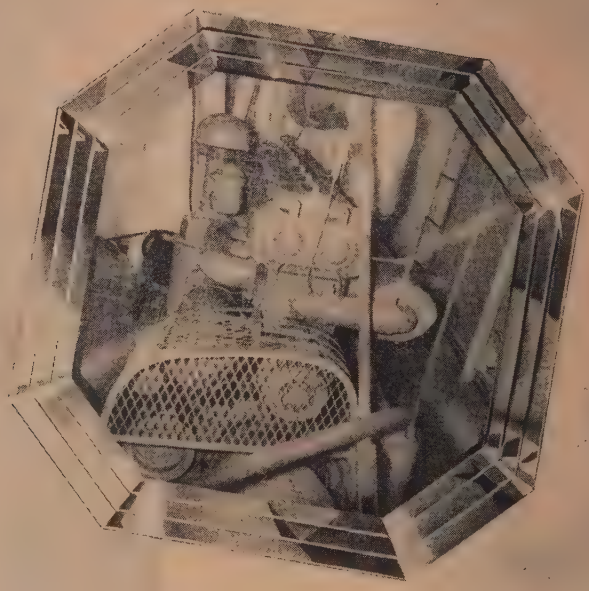
MURPHY DIESEL POWER



When it comes to dependable service and operating economy, ask owner Edward Crit tenden, of Bayou La Batre, Alabama, abou the Murphy Diesel Power that's "fit for a king." For his 64' x 18' x 7' trawler, *Gulf King,* he chose a 163 HP (continuous) Murphy Diesel to swing the 50" x 38" wheel through a 3:1 reverse and reduction gear.

As she works the Gulf from the Texas shore to the Florida keys, the *Gulf King* is assured of trouble-free, heavy-duty power, with the low operating costs that add extra profits to each day's catch.

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OOD FISH
ARKETING
tion of PACIFIC FISHERMAN —

News and Views of National Trade in Fish and Shellfish

June 1961

s Bumble Bee Seafoods Now

ith the merger of Columbia River ers Association, Inc., and the Corporation into Castle & Cooke, effective May 31, the C. R. P. A. was replaced by Bumble Bee oods, Inc.

is is in line with a modern trend siness which has seen a number ompanies adopt the name of a us brand as their "corporate e." This is recognized as forward- ng acceptance of the value in handising of direct company iden- ith the brand it features and the s it sells.

ne Castle & Cooke - Dole - CRPA er was voted by the overwhelm- najority of the stock of all three anies. The basis for the tran- n was the exchange of three s of Castle & Cooke capital stock ive shares of Dole common, and ght shares of CRPA common for shares of Castle & Cooke.

officers and directors of Bumble Seafoods and Dole are continu- n the management of the subsi- corporations.

stle & Cooke in the food field arge interests in Hawaiian sugar macadamia nuts, beside its other ties in investment and agency

le Corporation has canneries in lulu, San Jose, Calif., and Salem, packing pineapple products, Pa- Coast fruits, and some vegetables. mble Bee Seafoods packs can- almon and tuna; fresh and frozen ut, salmon, sturgeon, shad and Its operations include its head- ers plant at Astoria, Ore.; a tuna ery in Honolulu; a cannery and er at Newport, Ore.; cannery at gham, Wash.; cannery at Nak- Alaska; and 50% ownership in other seafood companies having ties in the Pacific Northwest and a.

lumbia River Packers Associa- is a name more than 60 years t originated about the turn of the ry in the consolidation of a group lumbia River canneries and cold storages. Its first venture into other fields was in the establishment of a cannery on the Nushagak River, Bristol Bay, in 1902.

Japan's Frozen Salmon Well-Liked in U.K.

British importers are finding frozen salmon imported from the Japanese floating operations extremely attractive on the basis of the goods delivered last year.

Reports from the United Kingdom indicate that effort to market Japan-packed frozen salmon steaks in London have lagged because of the difficulty in protecting these goods from oxidation.

However, whole dressed Silvers, heavily glazed, and each packed in an individual polyethylene bag, have more than made up for disappointment over the steaks. Last year's importations sold handily, and 1961 interest is brisk.

Critical examiners of the Japanese fish were particularly enthusiastic over the care the goods had received, and the excellent packing, which seemed to command more enthusiasm than the quality of the fish itself, good though that was.

American Packing Moves To Waterfront Location

American Packing Company's Seattle headquarters office was moved in March from 711 Second Ave. to the property of the Wards Cove Packing Co. at 303 East Northlake Way, Seattle 5.

This is the former location of the Wards Cove Packing Co., which has shifted its headquarters office to the former Libby, McNeill & Libby property at 84 Hamlin Street.

Karl V. Sjoblom, president of Ampac, secured the Northlake location on lease. It has dock facilities and is admirably suited for a salmon company base.

Salmon Inventory in U. K. Keeps Buyers Nonchalant

● Canned salmon inventory in the United Kingdom is adequate to the point where Britain probably could get along for a year with little or no additional purchasing, according to competent observers who have recently studied the situation there.

"Price will be the prime factor in sales to Britain this year," said one traveler. "Of course, that is not an earth-shaking statement, because price is *always* a prime factor; but this year more than usual the British buyer will need to scent a bargain before he spends a cent.

"They anticipate an improved yield of Fraser Sockeyes this year, and a greatly improved pack next year. Liking these goods better than any other, why should they this year buy more than they actually need—unless the price is *very* attractive; which it is not apt to be?"

● The same man cited the fact that he had seen Libby's half-pound Reds priced lower in London than in corner groceries in Seattle; and that the Pacific Coast super-market price was just about on a par with that in British "multiples".

He had some ideas on quarters also. "The quarter-pound situation is delicate to the point of danger. We know Japan has substantial quantities unsold from last year; and that the great producers there are prepared to can this size at sea this season. There'll be at least 20 quarter-pound fillers working on Puget Sound and in Alaska this season; plus renewed interest in British Columbia".

HERE'S GOOD NEWS—

PF's Canned Fish Hand-i-Book 3rd Edition Due in September

● *Pacific Fisherman's Canned Fish Hand-i-Book* will be published in its third edition as a supplement to the September, 1961, number of this journal.

This will be good news to many firms, particularly those concerned specially with marketing canned fish products, for the two previous editions of the *Hand-i-Book* proved exceptionally usuable tools for product promotion, consumer contact, broker education and in responding to the numberless inquiries received from persons interested in canned fish and sea foods.

For years this journal has been urged to produce another up-to-date edition of the *Hand-i-Book,* and we are happy now to be making response to these earnest requests.

Previous issues of the *Hand-i-Book* proved extraordinarily popular, the second edition exceeding 100,000 copies in its several printings.

● Obviously, the third edition to be issued with our September number will be an improvement, and will deal with commercial developments and technological trends right to the present.

We do not yet know how large it will be in number of pages. Otherwise, it will follow the page size of *Pacific Fisherman* and will be bound in the September number. *All* subscribers will receive a copy of the *Hand-i-Book* as a part of their regular September number.

● Reprints of course will be available, either with a plain back cover, or with the buyer's advertisement or other material printed on it.

Prices of the *Hand-i-Book* in separate form will vary with quantity, and a special discount is planned for orders placed in advance of Aug. 15, 1961.

Editorial preparation of the *Hand-i-Book* is already under way. It will contain an abundance of information of the type which has proven so usable in the past, together with new features suggested by the canned fish and sea food industry, can companies, national and state officials, industrial associations, sales managers and distributors.

To a greater degree than the first two editions, this *Hand-i-Book* of 1961 will recognize and deal with the increasing international aspects of canned fish packing and selling.

In no wise should it be considered a technical work. No more can it be classed merely as a means of answering the inquiries of school children.

The *Hand-i-Book* has the obj of providing the information sellers of canned sea foods need ily available, for their own inf tion, and in a handy form to on to their customers—the mos portant judges of all, the Ult Consumers.

● *Hand-i-Book* orders may be p or prices or further informatio quested, by addressing *Pacific F man,* 170 Columbia St., Seatt Wash., or: *Pacific Fisherman,* Howard Street, San Francisco 5,

Columbia River Spring Salmon Run Consisten

Spring Chinook salmon run i Columbia River during May w no time heavy, but was mark consistency of catch and prime ity of the fish. First 10 days season saw the river heavily po with slime which fouled the men's nets; but this tended to as the river rose gradually towa annual spring freshet.

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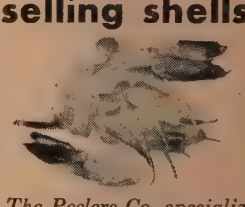

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5 Free Market for USSR Crab iggers Protest in Congress

elease of the restriction on im- into the U. S. of canned crab Soviet Russia triggered a spring n in Washington.

he story was only hours old, and denied by the Department of State, n Senator E. L. Bartlett of Alaska d up in the Senate and called n State to stop the action, or to nd it if already taken.

e declared that with the embargo Soviet canned crab in effect do- ic producers of canned crab have only 28.7% of the United States ket; and that if the competition is wn open further to the Soviet's idized and nationalized produc- the domestic industry will be d out.

e pointed out that the Russians re- ly had announced that "Their next rsion will be to the waters of the f of Alaska. We do not know what propose to do there. What we fear is that they may in a massive way move in on the halibut banks."

Senator Bartlett read to the Senate from the 1961 *Pacific Fisherman International Yearbook* regarding the Russian expansion into the King crab fishery of Bering Sea in 1960, in the Yearbook closed its account with these words:

"Thus a new, heavy and aggressive exploitation fell on the Bering Sea King crab resources under the banner of the Hammer and Sickle."

With the embargo on the canned product removed, a "new, heavy and aggressive exploitation" of the American market could be expected.

Senator Bartlett closed by declaring the proposed action "an error of the first magnitude . . . hurtful to our own people and helpful only to the Russians."

• In the House of Representatives Thomas M. Pelly of Washington flashed to the attack on any revocation of the embargo as an unwarranted appeasement of the Soviets and "another attack on a solely beseiged domestic industry."

Libby Purchasers Occupy Lake Union Location

Companies associated in the purchase two years ago of the Libby, McNeill & Libby salmon canning business this spring occupied the Libby properties on Lake Union, Seattle. The address is 84 Hamlin St.

The office building there now serves the CWC Packing Co., which purchased the Libby salmon department; Wards Cove Packing Co. and Columbia River Packers Association, Inc., which participate jointly in CWC; and the Frank B. Peterson Co., sales agent for the Wards Cove firm.

Headquarters of the Columbia River Packers Association, Inc., remain in Astoria, Ore., but it is now maintaining a branch office in Seattle. Its primary concern will be with the companies Alaska operations.

So. Calif. Domestic Tuna Deliveries

ulative totals for 1961 through May 13, in tons, as reported by U.S. Market News Service.

	Albacore	Bluefin	Skipjack	Yellowfin	Bonito, etc.	Total
ers and Albacore Fleet	...	...	1,714	5,576	...	7,290
Seiners	...	...	826	51,355	1,015	53,196
1961						
ough May 13	...	...	2,540	56,931	1,015	60,486
1960	...	110	8,548	40,314	20	48,992
1959	...	2,006	18,790	27,883	113	48,792

California Imports of Frozen Tuna

Cumulative data in tons for 1961 through May 13, and for other years to the nearest comparable date. Data from U. S. Market News Service.

	Albacore	Skipjack	Yellowfin	Unclassified	Total
Francisco	1,565	...	2,848	35	4,448
Pedro	5,499	681	6,500	...	12,680
Diego	762	18	366	...	1,146
to May 13	7,826	699	9,714	35	18,274
	11,225	3,047	13,479	465	28,216
	7,328	3,265	21,838	21	32,452

Southern California Tuna Receipts

ulative through April 20 for each year, as reported by USBCF Market News Service. Data include imports as well as domestic deliveries, and are stated in tons of 2,000 lbs.

	Albacore	Bluefin	Skipjack	Yellowfin	Bonito, etc.	Total
Pedro	5,499	...	1,639	55,678	1,015	63,831
Diego	762	...	1,600	8,119	...	10,481
1961						
ough May 13	6,261	...	3,239	63,797	1,015	74,312
1960	10,542	171	11,581	50,422	20	72,736
1959	7,009	2,027	21,904	46,378	113	77,421

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Stix Firm Observes Its Tenth Birthday

Robert L. Stix, Inc., in May observed the 10th anniversary for the founding of the firm. In speaking of the occasion, Bob Stix says with deserved satisfaction:

"In serving as North American office for leading foreign suppliers we have filled a trade need. By acting strictly as sales representatives, neither buying nor selling for our own account, we have developed a community of interest with our shippers, and the respect of our customers, which is essential for a sound, continuing business."

That's an interesting, concise statement of one firm's principles and patterns for its business.

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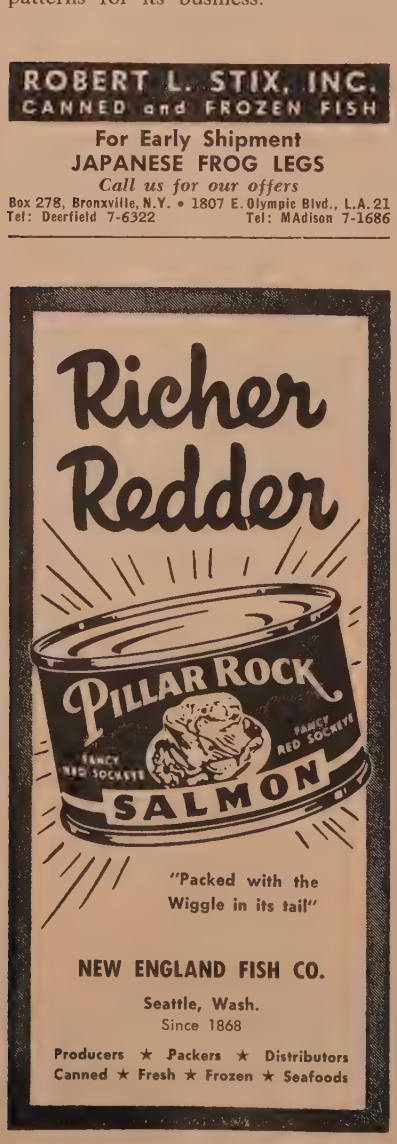

Peruvian "Tuna" Trade Grows Gradually in U.K.

Shipments of Peruvian canned bonito, which is "tuna" in Britain, continue to grow gradually, although shippers say the gradient of the curve has flattened greatly from the heyday of the trade.

There's a new aspect of the business now, with British specialty processors buying some Peruvian bonito/tuna packed in tall cans without oil. They use the fish for blending with other stocks in the pastes and specialties of which the British are fond.

Seattle Market

Market prices currently quoted at presstime by Pacific Northwest brokers and cannery sales department, cases of 48 tins, unless otherwise specified, good quality, as reported by the U. S. Bureau of Commercial Fisheries, Market News Service.

Items and Packages	Per Case
Puget Sound	
Sockeye, halves	$ - 25
Sockeye, quarters	- 15
Alaska	
Red, talls	35 -*37
Red, halves	23 -*25
Pink, talls	- 28
Pink, halves	15 - 16
Med. Red, talls	31 - 32
Med. Red, halves	19 - 20
Med. Red, quarters	13 - 14
Chum, summer, tall	- 25
Chum, summer, halves	13 - 14
Chum, fall, 4-lbs. (12)	- 25
Chinook, talls	- 32
Columbia River	
Blueback, halves	-*27
Blueback, quarters	- 16.50
Chinook, fancy, halves	26 -*27
Chinook, fancy, quarters	16 -*16.50
Chinook, choice, halves	- 19.50
Chinook, choice, quarters	- 13
Silver, halves	- 19
Silver, quarters	- 13.25
Tuna, Northwest Pack	
Albacore, fcy., 7 oz.	11 - 12.50
Yellowfin, s/pack, 7 oz.	- 10.50
Yellowfin, chunk, 6½ oz.	9.50- 9.85
Tuna, Columbia River Pack	
Albacore, fcy., 7 oz.	14.85-*15.25
Albacore, fcy., 3½ oz.	8.85- 9.15
Albacore, chunk, 6½ oz.	10.50-*13.25
Albacore, chunk, 3 oz.	6.50- 8
Lightmeat, fcy., 7 oz.	*14.25
Lightmeat, fcy., 3½ oz.	8.55
Lightmeat, chunk, 6½ oz.	*11.00
Lightmeat, chunk, 3½ oz.	*7.50
Canned Shrimp	
Northwest: 4½ oz. wet pack	- 7.25
Alaska: Tiny (over 17 per oz.)	- 7.25
Small (10-17 per oz.)	- 8
Medium (6-9 per oz.)	- 10
Canned Crab	
Dungeness, 24, 6½ oz.	- 13
Dungeness, 24, 3½ oz.	- 8.25
King, fcy., 7½ oz.	- 32
King, std., 24, 6½ oz.	- 15
King, std., 24, 7½ oz.	- 16

*Advertised brands

Mitsui Buys U.S. Brands For Use on Tuna

Purchase of two American brands by Mitsui Bussan K.K. be known in Tokyo recently. brands are *Empress* from Bien ing Co., and *Deep Blue* from American Co., Inc., both of H Street, New York City.

According to Mitsui's Provisio partment officials, negotiations the two large importers from had been under way for some and were concluded in March.

Mitsui previously had use *Cherry Star* brand on tuna i United States, but now the *Em* and *Deep Blue* brands will al featured by the gigantic firm, *Cherry Star* will be used prin for food products other than fish ticularly canned mandarin orang

Sebastian-Stuart Astori Plant Is Not Sold

The Astoria, Ore., plant o Sebastian-Stuart Fish Co., Seattl not been sold to a group of W ton, Ore., crab fisherman, as wa takenly stated in the May iss *Pacific Fisherman.*

The plant disposed of to the of crab operators was one locat Warrenton, where the company conducted crab operations.

The Sebastian-Stuart Fish C tains full ownership of the pla the central waterfront at Astoria is maintaining it in operation.

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nada Building Research p for Pacific

n ocean-going fisheries research el to operate in the North Pacific British Columbia coastal waters ow being built at Yarrows, Ltd., yard at Esquimalt, B.C., contract ng been placed recently by the adian government.

amed *G. B. Reed* in honor of a ner chairman of the Fisheries Re- ch Board of Canada, the 177′ ves- will be a similar vessel to one for Atlantic service. Cost is 86,816.

he *G. B. Reed* will be a floating ratory and her facilities will in- orate the latest development in eries research design. Hull will be welded steel construction, and er will be provided by a single el engine capable of providing ing speed of 12 knots. The ship be able to cruise 8500 miles with- refueling, and will carry a comple- t of 36, including scientists.

quipment will provide for bottom mid-water trawls, gillnets, long and other specialized fishing gear well as winches and rigging for ventional oceanographic survey op- ons. Refrigerated chambers and stores will be installed to enable vessel to stay at sea for six weeks time. Radar and echo sounders to be included.

kefield Runs Summer g Crab Operations

eparting from the usual American tice of shutting-down King crab ations during the summer months, efield Fisheries this summer is op- ng its three shore stations at Port efield, Seldovia and San Point, ka. There are four to five boats king at the first two stations and e to four in the Shumagins.

ecovery from the summer crabs elatively low, and the fishermen obliged to cull and return to the r unharmed a considerable por- of their catches, comprising the shelled males as well of course ll the females.

is interesting that the Japanese king operations are conducted dur- the summer months.

enberg Appeal Denied

ppeal of Bernard Oxenberg, con- d of arson in connection with the ing of the Independent Salmon neries property at Ketchikan in 3, was rejected in May by the ka supreme court.

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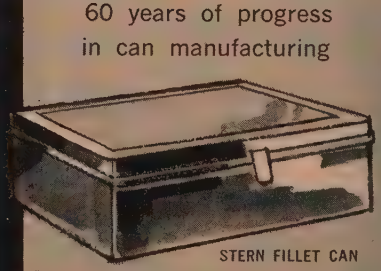

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"Chisik Island's" Fish Chilling System Emphasizes Stability

Joe Fribrock shows his teeth in joyful contemplation as he looks at his newly refrigerated power scow Chisik Island and thinks how sweet she'll handle with a load of salmon in a Cook Inlet seaway.

en power scows came largely to ce conventional cannery tenders rrying salmon from the fishing and receiving scows to the pack- ants the cargo space went up f the hold and the fish were l in bins on deck.

y *still* are on most power scows, n cases where these scows have equipped with mechanical re- tion and means of carrying fish in ice-cold sea water. This te of the fact that when you ck tanks with salmon and sea you may be making a compro- with stability.

eph R. Fribrock, proprietor of Harbor Packing Co., faced this m squarely when he undertook frigerating of *Chisik Island,* a scow which had rendered a lot rvice on Cook Inlet. Working W. E. Stone of W. E. Stone & Seattle refrigeration contractors, rked out a means by which the *Island* could effectively be sea water refrigeration, below

s of course required opening the modifying the timbering and ing the steel cargo tanks, all of was done effectively by Ken on of Maritime Shipyards, Inc., , the firm which built the power n the first place—for the Army rtime. The tanks were heavily ted and this coated with a pro- frost-defeating composition.

two tanks are each 30' long and ide. They are 76" high for 15' rd from the after end, and then slope up to 70" depth. Each tank has 1,300 cubic feet of space, expected to carry 8,500 fish of the Cook Inlet average.

The Stone refrigeration firm faced a perplexing installation problem, but licked it in the narrow confines of the alley between the two cargo tanks. The Pacific sea water circulating pumps protrude into this alley, and permit a man to squeeze past only because they are staggered.

Then far up forward the Vilter compressor and its drive motor are mounted in a vertical arrangement. Condenser is overhead in the alley and the two heat exchangers are mounted flat along the fore-n-aft bulkheads forming the alley.

Power for the refrigeration system is delivered by a General Motors diesel working a 60-kw. 220-v. generator. This is mounted on the main deck. Below are the twin Buda propulsions diesels.

● Beside the refrigerated *Chisik Island,* other Snug Harbor fleet improvements this season include 10 gillnetters built by Commercial Marine Construction Co., Seattle, and equipped with Western Ford diesels supplied by Pacific Marine Supply Co.

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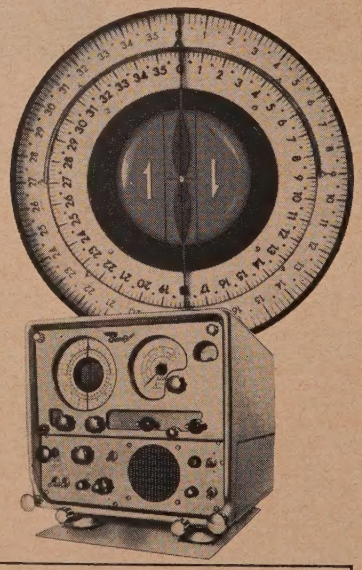

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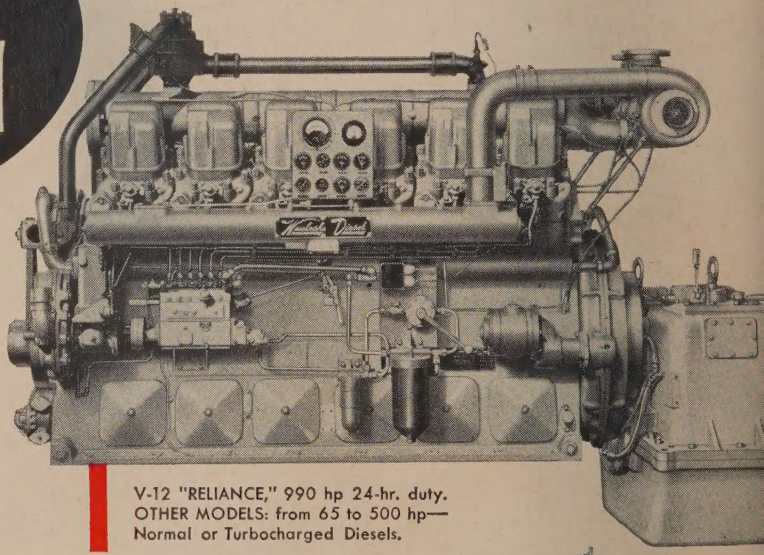

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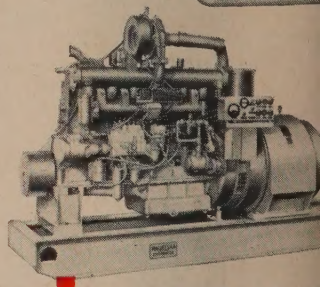

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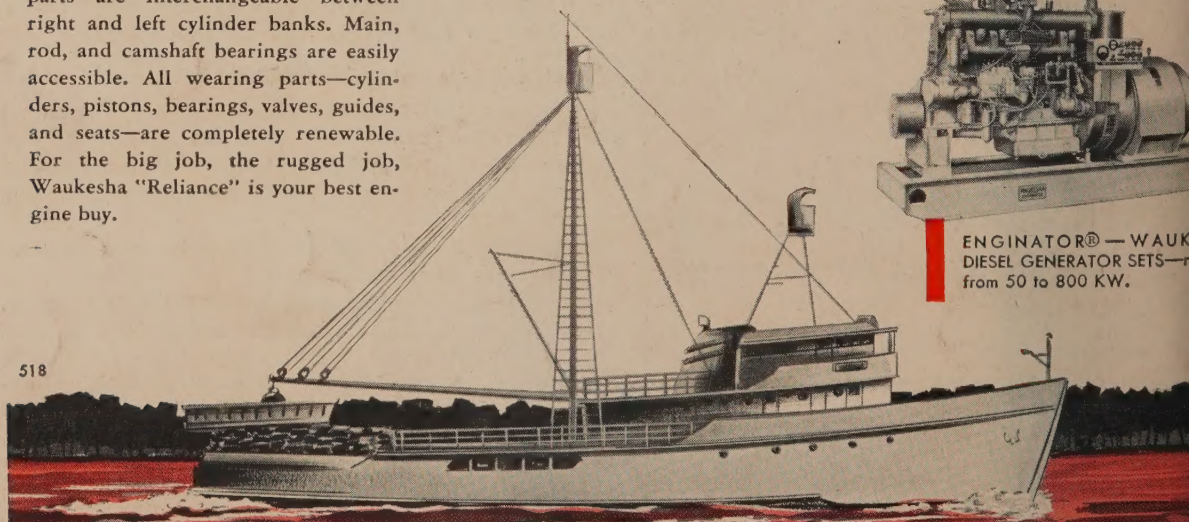

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